

Push-pull is sustainable organic agriculture

Paskalia Shikuku is a farmer-teacher who works through Mungao Sustainable Agriculture, an umbrella community-based organisation, which began in 2008 with 20 farmers who worked together to learn about sustainable organic agriculture.

In 2011, Paskalia met icipe field worker Isaac Onyango, who taught her how to cultivate push-pull. She planted push-pull on her own farm and in the first season worked with seven other farmers. The next season, she worked with twenty more.

When Isaac introduced greenleaf desmodium and mulato, things really took off. Paskalia has now spread push-pull to 130 farmers, including 100 women. She says that adopters “like the money and the fodder

that comes from push-pull, but mostly it is about the striga weed.”

Paskalia’s own farm is organic: she uses no chemical fertilizers, pesticides or herbicides. Her top-dressing is liquid manure, plant tea and bio-slurry. She intercroops with desmodium to prevent soil erosion. Her two push-pull plots and three local cows are the centrepiece of this agroecological farm which produces groundnuts, soya, maize, beans, sorghum, cassava and vegetables.

Paskalia’s four daughters were seven, five, four and three years old when their father died. They all went to high school, but the third did O-levels, and the fourth is now in college. The extra income from push-pull, says Paskalia “is why the last two ladies have gone to school better than the first two.”



What is push-pull?

Push-pull is a farming system where a cereal crop is intercropped with the legume desmodium, and the plot is surrounded with Napier or brachiaria grass for control of stem borer and striga. If well-established, the plot produces a high yield of healthy cereal crops. The desmodium and Napier or brachiaria grass also provide nutritious and quality feed for animals.

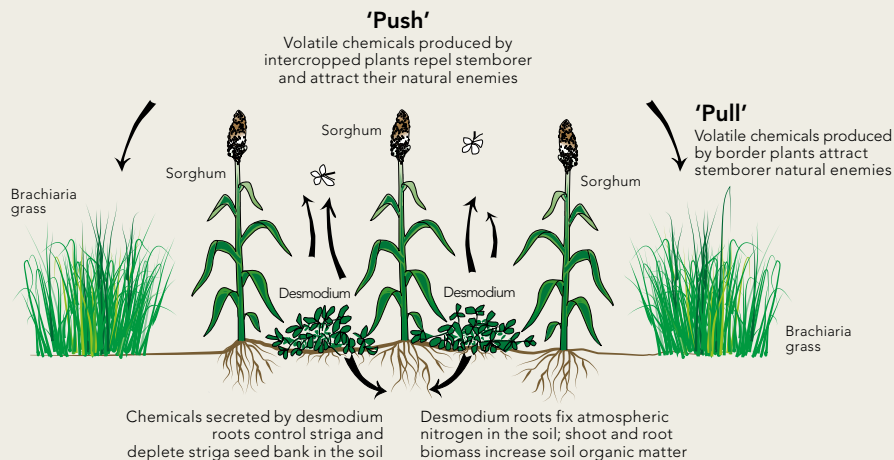


Using the push-pull system for planting stops the damage caused by striga and stem borer.

How does push-pull work?

Push-pull stops stem borer attacking food crops by using rows of desmodium planted between the rows of cereal plants, and a border of Napier or brachiaria grass planted around the plot. Desmodium is a 'push'

plant, which pushes the moth away from the food crop when it is time for it to lay its eggs. Napier and brachiaria are 'pull' plants, which attract the moth so that it lays its eggs away from the crop.



Push-pull stops striga taking away nutrients from the food crop because natural chemicals in the desmodium stop the roots of the striga from growing and attaching themselves to the roots of the crop plants.

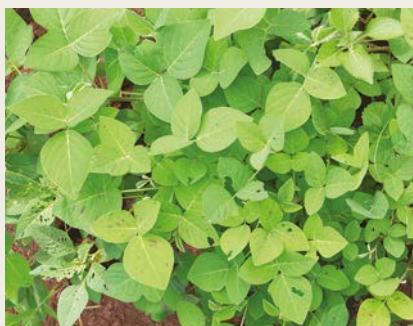
On top of dealing with stemborer and striga, using push-pull helps soil health and

fertility. Desmodium fixes nitrogen, adds organic matter to the soil, conserves soil moisture and enhances soil biodiversity, thereby improving soil health and fertility. It provides ground cover and, together with the border of Napier or brachiaria, protects the soil against erosion.

What do the push-pull plants look like?



In this push-pull plot, there is a row of sliverleaf desmodium between each row of maize, and a border of Napier grass.



In drier areas, the best plants for push-pull are greenleaf desmodium (left) between the rows of crop, and brachiaria grass (right) around the border.

How do I start using push-pull?

1. Clear your land during the dry season and prepare the soil to make it very fine. Demarcate the push-pull plot to plant three rows of Napier or brachiaria grass around the border of the plot, as shown in this drawing.



2. Plant alternate rows of desmodium and food crop. The rows of the food crop should be 75cm apart. Make sure that you start and finish with a row of desmodium. You will need 1kg of desmodium seed for 1 acre of land. Plant desmodium with the rains for maximum germination.
3. Early weeding is very important for establishing a push-pull plot. Weed once when the crop is three weeks old and once when the crop is five weeks old. This photo shows a push-pull plot of maize, desmodium and brachiaria just after the second weeding.
4. Trim desmodium after three and six weeks so that it does not overgrow in between the maize plants.



To learn more about how to get started with push-pull please contact:

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