

Food security through diversification

Grace Anyange's three-acre farm feeds her and the 14 other members of her family. She heard about push-pull when her husband attended a baraza in Maseno district, Kenya, in 2011. In 2012, she planted push-pull on a quarter-acre of her farm. Impressed by the increased maize yield and supply of fodder, she has added another quarter-acre every year since then.

Before adopting push-pull, Grace and her family only ate home-grown maize for two months of the year. "Now", she says, "we can feed this huge family!" – normally she does not have to buy in any maize. Their cows are also healthier, and they no longer lose calves through lack of milk. "If my husband hadn't gone to that group meeting," she says, "we wouldn't be where we are today."

Grace says that push-pull has brought other changes: "The training gave us the curiosity to try things out." She keeps crossbreed goats in a dairy unit, and hens in a poultry unit. Now Grace raises rabbits, too – and says there is a ready market. The family also eats meat much more often.

Grace became a farmer-teacher in 2013, and has trained more than 20 groups in push-pull. She says that helping others towards food security is a job she loves. "They pray for me every day," she says, "because I have made a difference in their lives."

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 stemborer and striga. If wellestablished, the plot produces a high yield of healthy cereal crops. The desmodium and Napier or brachiaria grass also provide nutritious and guality feed for animals.





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

How does push-pull work?

Push-pull stops stemborer 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.



Chemicals secreted by desmodium roots control striga and deplete striga seed bank in the soil Desmodium roots fix atmospheric nitrogen in the soil; shoot and root biomass increase soil organic matter 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.



- 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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