How do I plant a climate-smart push–pull field?

1. Plant drought-tolerant Brachiaria grass (cv. Mulato) in a border around the maize or sorghum (cereal) plot.
2. Plant at least four rows of Brachiaria all around the cereal field.
3. In the first year, plant Brachiaria before the rains so that it has a start on the maize or sorghum. The stemborer moths will be attracted by the Brachiaria.
4. Get drought-tolerant greenleaf Desmodium seeds. For 1 acre of land, 1 kg of Desmodium seeds is needed.
5. Prepare the soil carefully so that it is as fine as possible.
6. Using a strong pointed stick, make a furrow in the middle of the rows where maize or sorghum will be planted.
7. Mix the Desmodium seeds with superphosphate fertiliser (about one handful of seed and two handfuls of fertiliser).
8. If you cannot afford fertiliser, then mix seed with fine soil. Sow it into the furrows you made and cover with soil.
9. Plant Desmodium seeds with the rains for maximum germination.
10. Plant your cereal in the field surrounded by Brachiaria.
11. After 3 and 6 weeks, trim the Desmodium so that it does not overgrow in between the maize or sorghum crops.
12. Keep the field weed free.

Advantages of adopting the climate-smart push–pull technology:

- Increased maize and sorghum yields.
- Continuous supply of cattle feed from the Brachiaria and Desmodium.
- Nitrogen fixed in your farm by the Desmodium, hence saving on fertiliser costs.
- Soil protected from erosion as Desmodium acts as a cover crop.
- Soil retaining water as Desmodium acts as a mulch.
- Increase in profits from sale of Desmodium seeds at high prices.
- Increase in cash from selling more milk from your cattle and goats.
- Saving on farm labour, as you do not have to pull out striga.

Where do I get Desmodium and Brachiaria seeds?

- **Greenleaf Desmodium seeds**: Kenya Seed Company, agrovets and other farmers.
- **Brachiaria (cv. Mulato) seeds**: Kenya Seed Company, icipe and other farmers.
- **Maize and sorghum**: Seed companies, Kenya Farmers Association (KFA), other farmers and selected stockists.

Livestock feeding on Brachiaria and Desmodium harvested from push–pull fields.
What is the climate-smart push–pull technology?

It is a cropping strategy to control both stemborers and striga weed in drier agroecologies. The farmers use drought-tolerant Brachiaria (cv. Mulato) grass and Desmodium legume for management of these pests in their maize or sorghum fields. Desmodium is planted in between the rows of maize or sorghum. It produces a smell that stemborer moths don’t like. The smell “pushes” away the stemborer moths from the maize or sorghum crop. The Desmodium also covers the surface of the ground between the rows of maize or sorghum. It puts a chemical into the ground that stops striga weed from growing on maize and sorghum. Brachiaria grass on the other hand, is planted around the maize or sorghum crop as a trap plant. It is more attractive to stemborer moths and it “pulls” the moths to lay their eggs on it. However, Brachiaria grass does not allow stemborer larvae to develop on it due to poor nutrition for the stemborer larvae. So very few stemborer larvae survive, no striga grows and maize or sorghum is saved in the new push–pull strategy!

Have you seen stemborer and striga weed damage your cereal crop?

If you were to harvest 10 bags of maize or sorghum, 8 bags will be lost due to stemborer and striga weed.

How do stemborers get into your maize or sorghum crop?

Stemborer moths lay eggs on maize or sorghum plants. Eggs hatch into larvae that eat maize or sorghum leaves and burrow into the stem as they grow. The stemborer larvae hence eat the food the maize or sorghum would use to fill the grains.

Life cycle of stemborers

How does the striga weed affect your maize or sorghum?

Striga weed puts its roots into the roots of the maize or sorghum plant. Striga weed thus takes the food the maize or sorghum crop is trying to get from the soil.

A well-planted field should look like this: