

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

For any questions, write to:

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USE THE CLIMATE-SMART PUSH-PULL TECHNOLOGY

and produce more maize and sorghum by controlling stemborers and striga weed



International Centre of Insect Physiology and Ecology (*icipe*) with Rothamsted Research UK, Kenya Agricultural Research Institute (KARI), Institute of Sustainable Development (ISD - Ethiopia), Ethiopian Institute of Agricultural Research (EIAR), Lake Zone Agricultural Research and Development Institute (LZARDI-Tanzania), Heifer International in Kenya and Tanzania

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



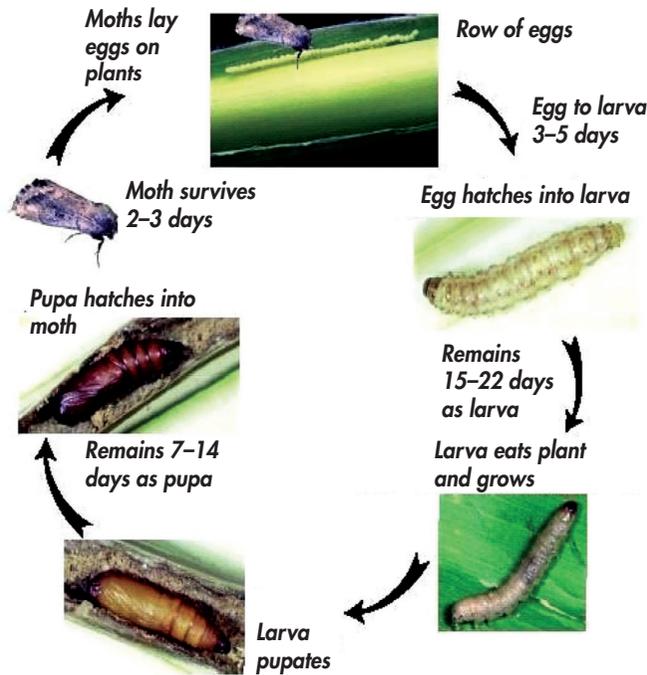
If you were to harvest 10 bags of maize or sorghum, 8 bags will be lost due to stemborer and striga



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.

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!

A well-planted field should look like this:

