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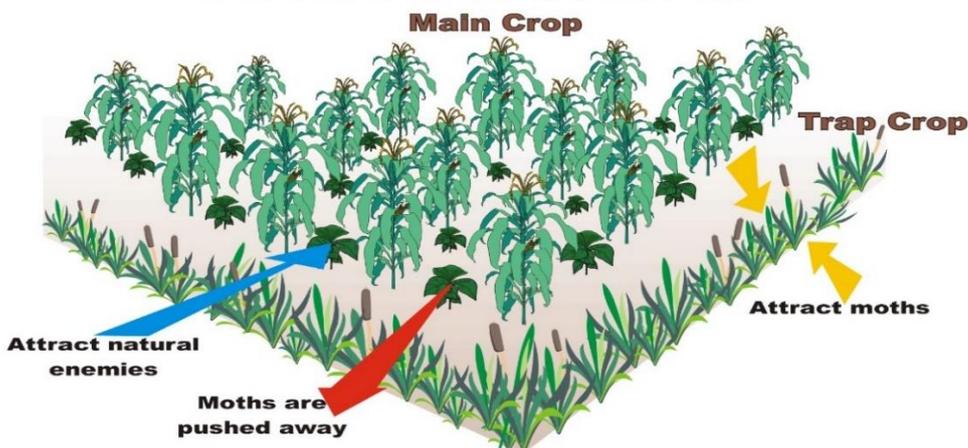
Push and Pull to control Fall Army Worm (FAW) and *Striga*

FAW:

"Push-Pull" is a technique used for pest control, like the Fall Army Worm. Push-pull uses plants that have physical characteristics capable of attracting or repelling such pests¹. The Fall Army Worm is a growing threat to Mozambique, having arrived from Latin America in recent years. The Fall Army Worm is difficult to control through pesticides. The use of pesticides has been a problem for the environment and human health².



PUSH-PULL SYSTEM



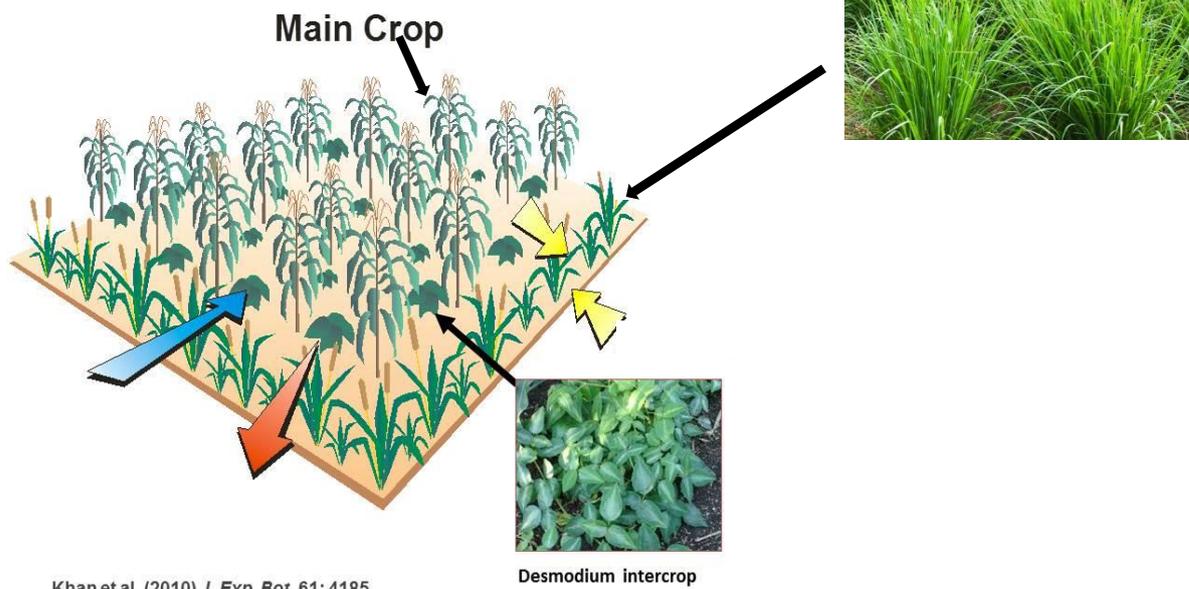
The figure shows how grasses to attract FAW are planted around cash crops. Intercrops within the maize field are also planted to repel FAW.

¹ In another technical brief, a method is described how the leaves and seeds of jackbeans can be used to control FAW

² There are 1,700 beneficial or neutral insects for each pest (J. Lundgren, Soil Health Education and Resource Guide 5th Edition)

The "Push-Pull" technique to control of the Fall Army Worm uses both methods at the same time, employing both attracting and repellent crops. The technique is based on intercropping leguminous crops such as jack bean, lablab, pigeon pea (attractive) between maize lines³ and planting elephant, Napier or Bana grass (repellent) around the field. Legume crops such as jackbean, lablab, and pigeon pea repel moths as they try to lay eggs on maize (host plants) and also attract predatory insects. The surrounding grass, in turn, attracts the moths, and secretes a liquid that glues the larvae and keep it fixed to the plant until it dies by hunger. In addition to repelling and controlling pests, legume crops fix soil nitrogen, cover the soil, prevent the loss of moisture and the appearance of weeds, whilst providing human food⁴ and forage for livestock. Elephant grass can also be used as forage for cattle and prevents erosion.

Push-Pull or Stimulo-Deterrent Diversionsary Strategy (Vuta Sukuma)



Khan et al. (2010) *J. Exp. Bot.* 61: 4185

Important Note: However, in our experience, which we are in the process of trialing, the strongest effect is that of repelling ('push'), only using the one component of intercropping legumes as a 'push' factor. In this way no deliberate planting of grass around the field is being done. Quite simply, we feel that the chance of farmers adopting deliberate grass planting will be low. As such we are simply encouraging farmers to not burn but to maintain natural vegetation, including grass, around their fields. Aside from potentially attracting FAW, this will act as a reservoir for FAW predators and other beneficial insects.



³ Another technical brief is available that demonstrates the main intercrops used and their spacings

⁴ Jack bean needs to be germinated and dehusked to detoxify it, this process is explained in another technical brief. The other intercrops, pigeon pea and lablab, can be eaten without any prior treatment

Striga Striga is a parasitic weed that is occurring in fields continuously cultivated with maize or sorghum, and degraded soils of declining fertility. Each striga plant has the capacity to produce 20,000 seeds and the seeds can be kept alive in the soil for up to 15 years. Striga seeds only germinate with the presence of maize or sorghum and this weed sucks the sap of the maize plant through parasitism on the roots. In fact, the striga roots actually penetrate the roots of the maize plant, injecting a toxin and stunting its growth.



tiririca (Cyperus spp); as well as reducing FAW. To be effective the legumes should be planted earlier or at least simultaneously with the maize, to ensure that the suppression of the germination of striga is present and effective.

RAMA-BC in Mozambique promotes legume intercropping such as lablab, pigeon pea, jack bean and cowpeas in their Model Family Farms to increase fertility and soil health. The use of legumes in the "push-pull" approach also significantly reduces the incidence of persistent weeds like striga and

Striga, FAW and soil infertility are major threats to maize productivity in sub-Saharan Africa that can be mitigated through this integrated approach to soil and pest management

