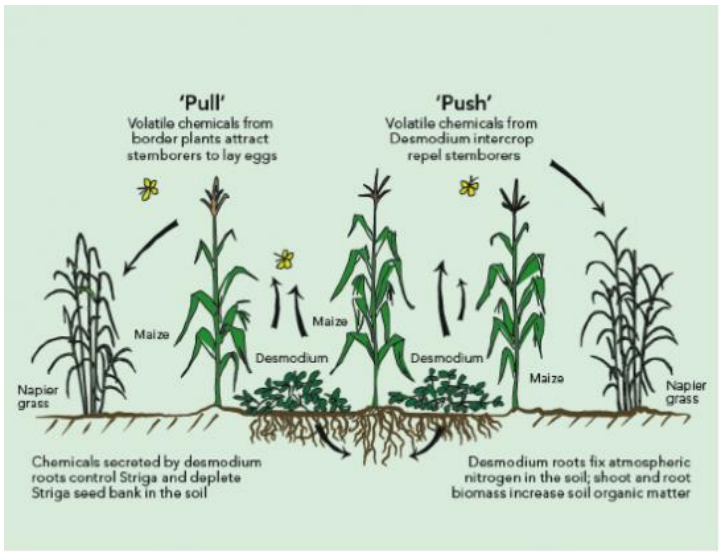
THE PUSH-PULL SYSTEM
TO ECOLOGICALLY CONTROL PESTS AND WEEDS IN KENYA

Professor Zeyaur Khan, scientists and researchers at the *International Centre of Insect Physiology and Ecology (ICIPE)* of Nairobi (Kenya) developed the push-pull technology, an innovative integrated approach to ecologically control pests and weeds of cereal crops, without using chemicals.

The technology involves intercropping cereals with a repellent plant such as the African native desmodium and planting an attractive trap plant, for instance Napier grass, as a border crop around this intercrop.



Stemborers are repelled or deterred from the target crop (push) and at the same time they are attracted (pull) to the trap crop, preventing damage on the cereal crop.

In addition, desmodium provides a novel means of *in situ* reduction of the striga seed bank in the soil through efficient suicidal germination: The plant stimulates the germination of striga seeds and inhibits their growth after they germinate.

The technology also enables small-scale farmers to venture into dairy cattle and goat keeping, as both desmodium and Napier grass are excellent fodder crops. After having rooted both plants spontaneously germinate to protect the next crop of maize and also reveal a permanent additional resource to fodder the animals or to be sold on the market, representing an additional revenue for the small producers.

Desmodium also fixes nitrogen and helps retain moisture through natural mulching, and prevents soil erosion; and it is also a perennial crop, which enables it to exert its striga control effect even when the host crop is out of season.

This innovative technology created by ICIPE simultaneously addresses the three key constraints of cereal production in Africa: stemborers, striga weed and poor soil fertility.

According with the ICIPE website, losses caused by stemborers can reach as high as 80% in some areas and an average of about 15-40% in others. Losses attributed to striga weeds on the other hand range between 30 and 100% in most areas, and are often exacerbated by the low soil fertility prevalent in the region. The soils are highly degraded due to continuous cropping with limited or no external inputs to improve soil fertility. When the two pests occur together, farmers often lose their entire crop.

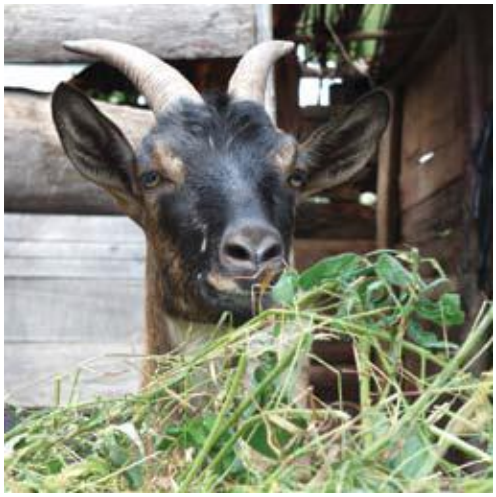
Crop losses caused by stemborers and striga weeds amount to about US $ 7 billion annually, mostly affecting the resources of small farmers.

Control of stemborers using pesticides is not only expensive and harmful to the environment, but usually ineffective as the chemicals cannot reach deep inside the plant stems where stemborer larvae reside. Similarly the use of herbicides against *Striga* is neither effective nor feasible among smallholders in the region for both biological and socio-economic reasons.

To date the Push-Pull technology has been adopted by over 131,229 smallholder farmers on their farms in East Africa where maize yields have increased from about 1 t/ha to 3.5 t/ha, achieved with minimal inputs. In particular it is being adopted in Kenya, Uganda, Ethiopia and Tanzania. The technology is based on locally available plants, not expensive external inputs, and fits well with local traditional mixed cropping systems of these countries.

Prof. Zeyaur Khan and the ICIPE Institute received the 2011 TWAS Prize for Agriculture, for their discovery and wide-scale implementation of the Push-Pull Technology, a scientific innovation for enhancing food security and environmental sustainability in Africa.

According with the studies of the ICIPE scientists the push -pull system can potentially be applied to other cultivations representing an important source of food in Africa. Taking into account that striga, for example, parasitizes maize, millet, sorghum, sugarcane, rice, legumes, and a range of weedy grasses, the researches ongoing at the ICIPE Center can make an important contribution to a new ecological and sustainable agriculture.



To know more

Push Pull Net website

Dissemination materials

ICIPE SlideShare on Push Pull Technology

Push Pull technology in Wikipedia

Rothamsted Research website

SlideShare on Push Pull Technology

Artículo en Act-Africa.org

Artículo en biovision.ch.en

Artículo en agripensar.wordpress.com