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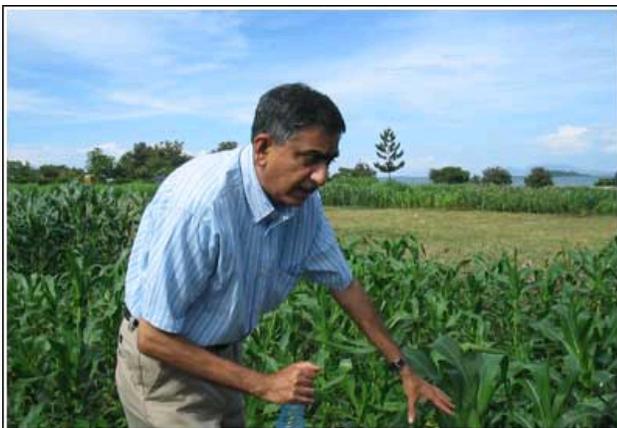
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## 'Push-pull' agriculture stems migration into cities

By Keya Acharya

More than 25,000 small farmers in East Africa have multiplied yields with push-pull cultivation, in which Desmodium planted alongside maize pushes out pests while Napier grass planted along the borders pulls them in. The method could be used in India to good effect



Dr. Zeyaur Khan at ICIPE

From afar it's a typical scene from Africa: a scientist standing amidst a field of maize. But neither Dr Zeyaur Khan nor the maize plot behind him are typical of anything African, or even global. Both are unique as innovative answers to food security in Africa. And perhaps for millions of small farmers in India and the developing world.

Dr Khan is a pioneer of the 'push-pull' method of agriculture, something that sounds complicated but is in fact a simple method by which small farmers on individual plots of land can increase their yields significantly, contributing to the food security of the country.

The East African (Kenya, Uganda, Tanzania) staple maize is plagued by a stem-borer cereal-eating pest and by the parasitic Striga weed that strangles the plant. These countries lose US\$7 billion alone due to the Striga weed, and \$5-6 billion to the stem-borer, says ICIPE, the International Centre for Insect Physiology and Ecology, based in Mbita on the shores of Lake Victoria in Kenya.

In sub-Saharan Africa, 6,122,000 ha out of the total maize area of 25,375,000 ha are stricken with Striga.

'Push-pull' was devised on experimental plots at ICIPE. Scientists took around 15 years to prove conclusively that the system works and works well.

The method involves interspersing the maize planted in a plot with the Desmodium plant species. This plant repels the stem-borer; it is in effect 'pushed out'. Also, it is attracted to the Napier grass that is planted as a border on all four sides of the plot; this acts as a 'pulling' agent for the pest. And so the system is called 'push-pull'.

"I discovered that Desmodium kills the Striga weed quite by accident," says Khan. Experiments later proved him right.

In the ICIPE fields, the visible difference in a 'push-pull' plot and a 'normal' one is remarkable. The method yields 3.5 tonnes of maize per hectare, whereas previously the same hectare yielded less than 1 tonne of maize. Ninety-nine per cent of Africa's farmers are smallholders who do not use either chemical pesticides or fertiliser on their lands.



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