

The Toothpick Project - Seed Treatment to Control *Striga hermonthica*

P. Lueth¹, N. Kisala¹, H.S. Nzioki², and D.C. Sands³

¹Toothpick Company Ltd., Kakamega, Kenya

²Kenya Agricultural and Livestock Research Organization, Machakos, Kenya

³Department of Plant Sciences and Plant Pathology, Montana State University



Striga on sorghum in Sudan

Striga hermonthica is a parasitic weed damaging maize, sorghum, millet, sugar cane and rice.



Striga (witchweed) attacks the most important crop in Africa, maize (staple food)

\$9 billion in crop loss annually at the hands of smallholders

40 million smallholder farms have Striga

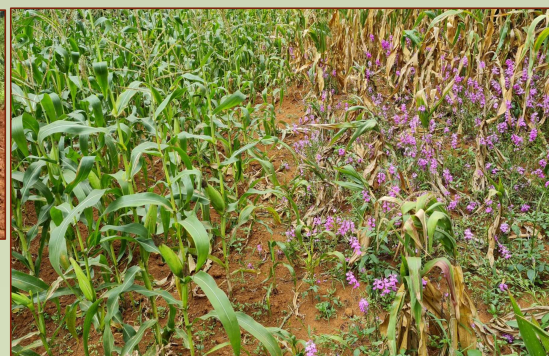
Meaning of Striga in Sub-Saharan Africa



Registration of the product Kichawi Kill in Kenya



Application of 1.5 g product per planting hole



Treated plot

Untreated plot

Kichawi Kill is a freshly produced rice substrate overgrown with the fungus *Fusarium oxysporum f.sp. strigae*.

Advantages

- Biological product
- Excellent efficacy
- Production is creating jobs in the villages

Disadvantages

- Complicated production process
- High risk of contamination at production
- High costs
- High application rate (75kg per hectare)
- Complicated and time consuming application
- Applicable only on maize at small-holder farms

Development of a Fusarium oxysporum spore powder



Fusarium spore powder

- Very fine powder
- High spore concentration
- Very vigorous spores

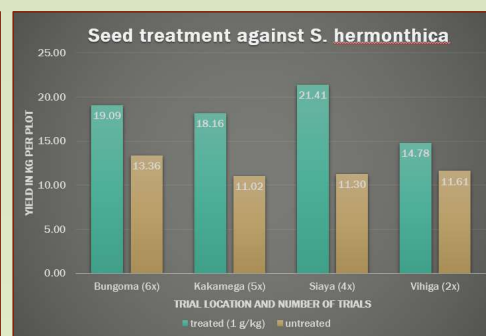


Fungus colony built within 24 hours

- Spores germination within on day
- 1.0 g per kg of seed
- Good shelf life



Germination of Fusarium from maize seed



First trials showed very encouraging results.