Bruchid Project Biopesticide Management: 2015-2017

Mr. Jackson Lutanya Sunguti of Mharaka village in Gairo Division Kilosa District, Morogoro Region

*"On botanicals, we **tested** about five plants and established that the Mjui (Zanha africana) , Livanga (N. mitis) and Ikanganyishe (Chenopodium ambrosoides) were more effective but Mjui was readily accessible at our locality. Researchers from SUA taught us on how to prepare Mjui right from harvesting, peeling, drying, pounding, packaging of the powder and application rates. I have started to think about turning it into a **business**, it's all about **scaling up** of what I am doing at present. I have started to test planting the crop, it is quite versatile in terms of soil requirements, it does well in sandy-loamy or loamy-clayey soils and not very demanding in terms of rainfall"-*

Southern Africa Community of Practice

Project Partners

Sokoine Univ. of Agriculture — Oregon State Univ

University in Region — University outside of Region

Contextualized scaling

Scaling biopesticides via commercialization:

Farmers in the **villages of Kisanga, Mtumbila** and **Bashnet** have **started collecting and processing** (harvesting, drying, grinding and packaging **pesticidal plants**, processing and packaging) in **200g-500g packets for sale.**

Understand biology and ecology as the basis for management:

Zanha africana is a deciduous **tree species** found in east and southern Africa which is harvested from the wild **as a local source of food, medicines, soap and wood.** Chloroform, methanol and water extracts of a *Zanha africana* **root bark inhibited oviposition and caused significantly higher mortality of cowpeas weevil** (*Callosobruchus maculatus*) **an important storage pest incowpea weevil,** at a rate of application equivalent to that applied by farmers compared to control insects . The **crude extract of powder from root bark significantly inhibited *Acanthoscelides obtectus* and *Zabrotes subfasciatus* adult bruchids from oviposition and reproduction**. This plant contains nor-hopanes and these were toxic to, and reduced oviposition of, bruchids in a dose dependent manner.

Participatory Research

Community of Practice (CoP)

Strengthen capacity in pest/ disease/ weed research:

The Bruchids project was impressed by the results presented by the **Botanicals project** during a CoP meeting, which then led to a 2015 workshop on the topic attended by several projects .**Participants learned how to collect or cultivate pesticidal plants, extract the active ingredient and store and apply the product.**

Test and refine management options, including working with farmers:

Through a participatory approach, the **Bean Bruchid project identified 11 plant species that are used by farmers to prevent post-harvest crop losses**. After several seasons of tests at the laboratory and field levels, the following plants have shown a high level of efficacy in suppressing Bruchid: ***Chenopodium ambrosoides; Dolichus spp; Gnidia kraussianameissner; Neorautanenia mitis and Zanha africana.***

Local knowledge

neorautanenia-mitis
(Tupa in Sagala)

chenopodium ambrosoides
(Ikanganyishe in Chaga)

dolichos spp
(Mjui in Kaguru)

gnidia kraussianameissner
(Ndindindi in Nyiha)

zanha africana
(Livanga in Bena)

The Need

In **many regions** of **Tanzania common beans** (*Phaseolus vulgaris L.*) are the **most important pulse crop** both as a source of dietary protein and calories, as well as a source of farm income. **Bean bruchid** is a **pest** that can **cause** between **40-100% loss in one season if bruchid infested beans are not protected during storage.**

START HERE

LEGEND:
Results
CCRP strategies

COLLABORATIVE CROP RESEARCH PROGRAM

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