Tanzania
Integrated Pest Management Innovation Lab country profile

Population: 49 Million
GDP per capita: $1,700
Feed the Future country? Yes
Involvement in this country since: 2006

Challenges:
- Chemical pesticide misuse and overuse
- Seasonal production and value chain issues
- Biodiversity loss
- Low productivity
- Low sensitivity to environmental issues

Map courtesy CIA World Factbook

Related project name: Regional IPM Project in East Africa

Project Overview: IPM Innovation Lab work in Tanzania focuses on improving the productivity of high value horticultural crops and reducing chemical pesticide-related environmental pollution by adopting IPM technologies. In Tanzania, IPM Innovation Lab activities focused on coffee, tomato, and onion.

Accomplishments:
1. Reduced production costs and increased returns. An IPM package developed and adopted for farmers included the use of mulch for disease and weed management, as well as improved crop varieties.
2. Extended shelf-life of tomatoes: IPM researchers in Tanzania showed that applications of chlorine treatments extended the shelf-life of tomatoes.
3. Reduced weeds and pesticides: Reduced irrigation frequency led to reduced use of pesticides. Post-harvest IPM practices also reduced the amount of fungicides employed.
4. Enhanced virus detection and screening germplasm capabilities: The capacity to detect and identify viruses was enhanced at Sokoine University of Agriculture, leading to the development of detection tools for screening tomato germplasm.
5. Capacity building for growers, extension workers, and students: Farmers and extension workers have been trained in seed treatment, nursery establishment, mulch selection and application, scouting for insect pests and diseases, safe application of pesticides, and post-harvest treatment of produce. Undergraduate students conducted their research in project activities and were trained in IPM technologies in conjunction with the use of high tunnels.
Fighting insect pests and diseases with integrated pest management

In Tanzania, insect pests (like whiteflies, mites, and thrips), diseases, and weeds pose major threats to tomato production, sometimes decimating crop fields completely. Traditionally, farmers have relied upon excessive pesticide applications including mixtures of insecticides and fungicides. IPM researchers have been experimenting with mulching to improve the post-harvest quality and shelf-life of staple crops like tomatoes.

Studies are also being conducted on the effect frequent weeding has on the pests of onion. Onion thrips, onion grub, and purple blotch are the most serious pests of onion in Tanzania. The experiments have shown that weeding had a significant effect; onion yields more than doubled with one weeding, and tripled with three weedicings.

Coffee is an important export crop in Tanzania, and it, too, is plagued by insect pests, weeds, and diseases. The major insect pests of coffee in Tanzania are white coffee stem borer, coffee berry borer, and the antestia bug. Major diseases include coffee berry disease and leaf rust. Major weeds include star grass, couch grass, and wandering Jew. Two betylid parasitoids, *Cephalonomia stephanoderis* and *Prorops nasuta*, are considered promising for the control of coffee berry borer. Researchers have begun the rearing of these parasitoids for mass multiplication in collaboration with the International Center for Insect Physiology and Ecology. In addition, a cost-effective, locally-made coffee berry borer attractant was found to be most effective compared to commercially available pheromones, and has been recommended for use by farmers.

Relevant web site:

Local Implementers:
Sokoine University of Agriculture (SUA) and Tanzania Coffee Research Institute (TaCRI)

Regions/Provinces:
Morogoro, Kilimanjaro, Kagera

Principal Investigator:
Mark Erbaugh, the Ohio State University

Contact Info:
Director, IPM Innovation Lab: Rangaswamy Muniappan
Email: rmuni@vt.edu
Phone: 540-231-3516