

Tanzania

Integrated Pest Management Innovation Lab country profile



Source: <http://www.nationsonline.org/oneworld/map/tanzania-administrative-map.htm>

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 of environmental issues

Related project name: Regional IPM Project in East Africa

This project developed IPM technological packages and systems that improve the productivity of marketed horticultural crops and incomes for small-scale growers.

Tomato: Insect pests (whiteflies, mites, thrips, bollworms), diseases (blights, viruses, nematodes), and weeds (nut sedges & wandering Jew) pose major threats to tomato production in Tanzania reducing yields by up to 100%. Traditionally farmers relied upon excessive pesticide applications including mixtures of insecticides and fungicides applied 9 to 12 times per season and 2 to 3 labor intensive weedings to grow tomato.

Accomplishments:

1. An IPM package was developed and adopted for use by farmers comprised of improved varieties (Tanya or Cal-J), 3-4 need based pesticide sprays per crop season, and application of mulch (10 cm thick) for disease and weed management. Adoption of IPM package reduced production costs and increased returns. The IPM package has the potential to return USD 29 for every USD invested. Reduced pesticide application also resulted in less contaminated tomatoes and less chemicals in the environment.
2. Mulch reduced the occurrence of weeds and the frequency of weeding from three to one light weeding; reduced irrigation frequency from three to one per week led to reduced pesticides applications. Use of rice straw as mulch has increased its value so that it is not burnt, thus reducing carbon emissions.
3. Post-harvest application of commonly available household bleach (e.g. Jik®) mixed with water (90 ml bleach in 20 litres) to red-ripe tomatoes maintained market quality of fruits for 5 weeks compared to one week for untreated fruits. This technique is cheaper and safer than applying fungicides to harvested fruits as usually practiced by farmers who have been influenced by traders.
4. The capacity to detect and characterize viruses was enhanced at SUA leading to the development of detection tools for screening tomato germplasm.
5. Producers receive a premium price for their tomato during rainy season. Tomato production under high tunnels allows rainy off-season tomato production and reduces insect pest and disease pressure. High tunnel production yielded 70 tons per ha compared to 15 tons per ha under open field conditions.
6. Video on IPM activities with tomato growers has been produced. To view the video go to (will link this to IPM IL website).



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Farmers evaluating pest management treatments on-station (left); farmers applying mulch on their field (right)



High tunnel (left) and tomato production in the high tunnel; farmers training in high tunnel (right)

Onion: Onion growers in Kilosa district identified Onion thrips –*Thrips tabaci*; onion grub-*Phyllophaga* spp.; purple blotch disease- *Alternaria porri*; and weeds (sedges, broadleaf and grasses) as the most serious pests.

Accomplishments: Mulching onion with rice husks resulted in 20% higher onion yields compared to weeding twice or stale bed technique.

Coffee: 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. Lures locally made from banana (*mbege* and *lubisi*) and sugarcane (*dengelua*) were compared to commercially available pheromones for their effectiveness on the control of coffee berry borer. Naturally occurring parasitoids were collected and reared for evaluation under laboratory conditions.

Accomplishments: A cost-effective, locally-made coffee berry borer attractant (*mbege*) was found to be most effective compared to commercially available pheromones and has been recommended to be used by farmers. Two local parasitoids (*Cephalonomia stephanoderis* and *Prorops nasuta*) were found to be effective in the control of the coffee berry borer. The two species are being reared for eventual release.

Capacity building for growers, extension workers and students:

1. Training: 1,166 (404F:762M) farmers and 20 extension workers (8F:12M) have been trained in seed treatment, nursery establishment, mulch selection and application, scouting for insect pests and diseases and decision making on need for pesticide application, safe application of pesticides and post-harvest treatment of produce. 515 (301M: 214F) were trained on coffee IPM technologies. 24 undergraduate students conducted their research in project activities and another 1,176 undergraduate students (74F:102M) were trained in IPM technologies on high tunnel. 6 MSc and 3 PhD (3F:6M) students registered at SUA conducted research on IPM for tomato and onion.
2. Women's involvement: Women were targeted in all activities. Overall female participation in farmer training was 34.6% and in graduate training 33%

Relevant web sites: <http://www.oired.vt.edu/ipmcersp/our-work/projects/east-africa/>

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

Regions/Provinces: Morogoro, Kilimanjaro, Kagera

Contact Information

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