Globalizing IPM: Participatory Research and Technology Transfer

Developing IPM Packages

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Why participation ?

- Traditional, top-down, technology transfer programs were not working;
- Solution: To involve farmers, through their participation, in the research process.

Objectives of Participatory IPM (PIPM)

- To develop pest management alternatives for priority crops, pests & diseases (tactical approach).
- To raise knowledge and awareness of fundamental IPM concepts (strategic approach);

Participatory IPM (PIPM) Process

Characteristic of PIPM:

To involve farmers in each step of the research process.

Four Stages:

- Identify stakeholders & develop strategy for implementation
- Problem identification & prioritization
- On-farm trials
- Evaluation and Assessment

Stakeholders Meeting

- **Institutional Constraints on IPM**:
  - little research being done on alternatives to pesticides;
  - research effort was highly fragmented;
  - weak linkages between research & extension;
  - weak linkages between scientists & farmers (top-down).

Strategic solutions:

-involve scientists from NARO, MU & extension;

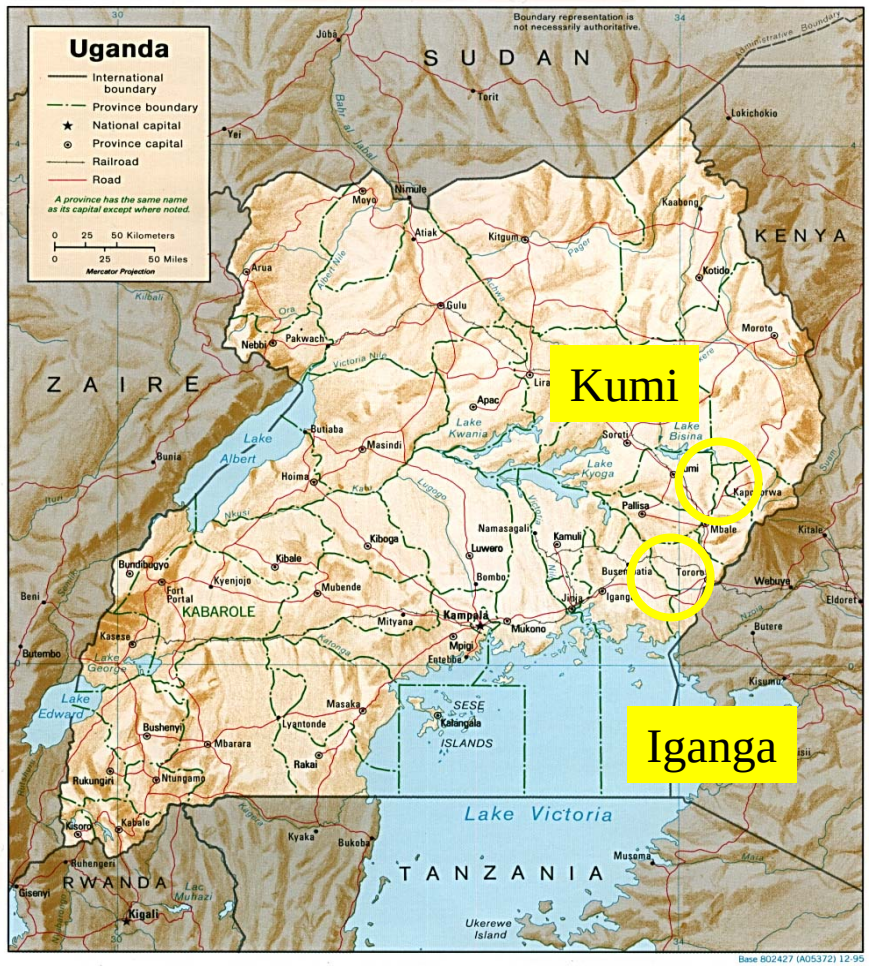
-work with farmer NGOs.

Results of PA Workshop

- Stakeholders developed understanding of IPM & the role of farmer participation in research process;
- Demonstrated and selected participatory tools;
- Contributed to team building;
- Helped refine R&D strategy.

Research Sites in Eastern Uganda

- Iganga: maize/beans, bi-modal rainfall-1250mm-2200mm, little animal traction, 196/kilometer^2, Soga;
- Kumi: millet/sorghum, cowpea/gnut, less distinct bi-modal, 1000mm-1400mm, animal traction, 96/k^2,Teso



Stage 2: Problem identification and prioritization

- **Key tenet** of participatory approaches: Research problems and priorities should be identified by the end user – the farmers.
- **PA with farmers.**
- **Initial baseline survey**
- **Pest and disease monitoring programs.**

Results of Participatory Appraisal (PA)

Most important constraints were labor & pests/diseases;

- Priority crops in Iganga were maize and beans;
- Priority crops in Kumi were gnuts, cowpea, sorghum & millet
- Priority ranking of pests, diseases, weeds
- Pest Mgt.= pesticides

Baseline Survey Documented Several Aspects of Pest/Disease Management:

Purpose: Validate PA, socioeconomic data, benchmark info.

- 70% of the sample used pesticides, and 76% of cowpea and 42% of the gnut farmers reported using pesticides
- Men were more likely to apply the pesticides but women were as likely to report having their fields sprayed

Baseline Survey (cont.)

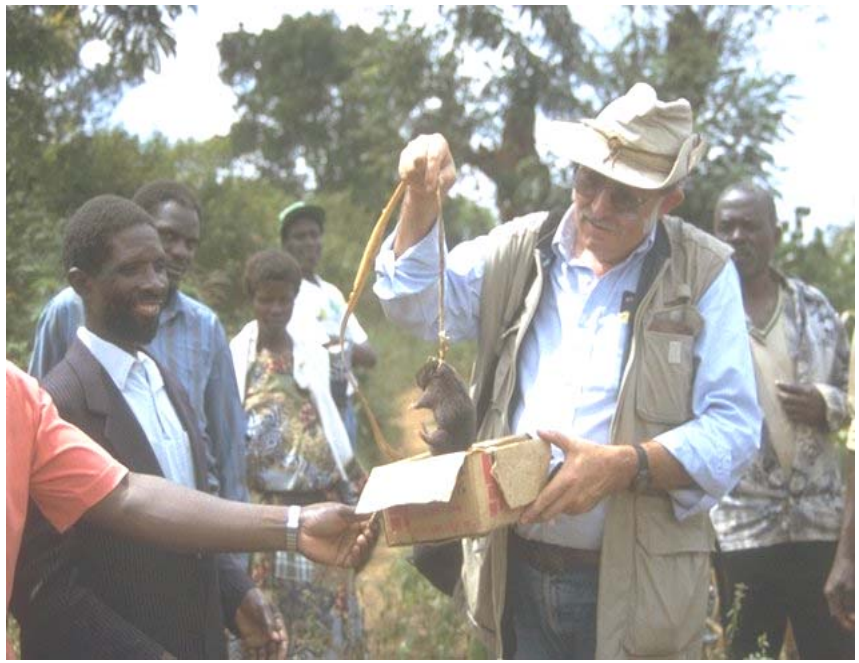
- Confirmed that farmers were generally unaware of alternatives methods to control pests & negatives of pesticide use;
- Lacked knowledge of beneficial insects, small insects (thrips), vectoring, & many diseases.
- Post-harvest pests major problem with cowpea, beans, maize and sorghum.

Farmer Crop Pest Monitoring System

- Field Scouting is an IPM technology;
- Wanted to get farmers engaged in the research process;
- Needed to validate farmer perceptions;

Results of Crop Monitoring

- Farmers learned to scout, sample & id pests;
- Priorities changed (root rat out & bean fly in);
- Farmers initially liked being part of monitoring process
- Reduced logistical costs.



Stage 3: Designing and Testing IPM Technology

PIPM Tenet: Participatory method of triangulating knowledge useful for ID of demand driven priorities;

- Priorities determined scope of research agenda;

ITERATIVE R&D PROCESS

- Testing alternative pests management components;
- Combining into integrated on-farm trials;
- Doing additional lab research;
- Farmer Trial Evaluation

On-farm trials with Sorghum

Constraint: Parasitic Weed Striga

- Celosia argentia (Striga chaser)
- Fertilizer
- Tolerant variety
- Rotational experiments (with cotton as trap)
- Farmer control

Sorghum/Striga Trials

Treatments	Impact on Striga emergence	Impact on sorghum yield
4-year rotation with cotton & cowpea	- 48%	+ 14%
Intercropped with *Celosia argentea*	- 60%	+ 32%
N + Striga tolerant variety	- 35%	+83%

On-farm trials with Gnuts

Constraint: Rosette disease & aphid vector

- Resistant variety Igola-1
- Increased plant pop.
- Early planting
- Reduced spray program: 10 days after emergence & than at flowering.

Additional Gnut. Research

- Tested 12 ICRISAT genotypes for resistance;
- EILs & ATs for thrips;
- Cropping & spray application effects on predators & parasitoids
- Explored biological control program for leafminer;

Stage 4: Participatory Technology Assessment

- Initially did assessment of on-farm trials individually with farmers;
- Conducted farmer open-days; farmers led descriptions of trials;
- Preferred open days:
  - Reached broader audience
  - Empowered farmers

Farmer Participation Increases Impact

- More active farmer participation increases knowledge of IPM and is also the most important factor explaining adoption of IPM technologies;
- Gender, size of farm, and level of education did not affect adoption.

PIPM PROCESS

- Created a dynamic between formal & informal knowledge systems;
- Led to a synthesis between tactical & strategic approaches to IPM;
- It proved to be flexible enough to allow the process to be adapted to local contexts, and to new agroecologies;
- Proven to be replicable.