Farmers and Research Networks

- Farmer field schools
- The McKnight Foundation CCRP
- Farmer research networks
FFS on crop disease management
Principles v. prescriptions

- Prescriptive approaches dominate in agriculture
  - Seed + fertilizer recommendations
  - Agroecology via “branded bundles”
- But one size does not fit all! OxC interactions
- Need for local adaptation, innovation → precision ag for smallholders
- Principles feed innovation
Principles re: pest & disease management

**Roots:** knowledge of pest biology / ecology

**Barriers:** reduce pests’ access to the crop

**Kill the pest:** Use botanical sprays or synthetic pesticides to reduce pest numbers

**Natural enemies:** reduce the density of the host; block pest movement

**Mix it up:** reduce the density of the host; block pest movement

**Breeding:** reduce the crop’s inherent vulnerability

**Manage evolution:** Diversity etc. to reduce evolutionary pressure (discourage migration, recombination)

**Repel the pest:** Use intercrops, companion crops, botanical sprays, etc. to deter pest

**Manage the microenvironment:** spacing etc → less favorable to the pest/pathogen

**IPM**
Participatory evaluation of new breeding lines
CCRP Communities of Practice (CoP)

Southern Africa: Integrating legumes in cereal-based systems

High Andean Cropping systems

West Africa: Millet- and sorghum-based cropping systems

East and Horn of Africa: Crop Improvement

Southern Africa: Integrating legumes in cereal-based systems
Working with farmers in CCRP

At CoP level
• Consultation meeting for Andes CoP: 1/3 farmers
• Farmer reps at CoP meetings – mixed history
• Capacity dev’t re: participatory approaches

At project level
• Farmer groups involved in most projects
  • Approaches vary widely
  • E.g., participatory breeding
• Several NGO-led projects
• 1st project led by farmer organization underway

Farmer research networks
• Concept now being developed and tested
Fuma Gaskiya wins UN Equator prize

Equator Prize for Sustainable Land Management in Sub-Saharan Africa

Fédération des Unions de Producteurs de Maradi Gaskiya is a research-driven initiative that is bringing agro-ecological options to smallholder farmers. Composed of 17 unions, 325 self-help groups, and 12,742 members, the work includes promotion of high-yield crops, participatory planning, marketing of produce and organic certified seeds, and the diversification of agricultural production systems. Farmer incomes have improved significantly, with a percentage of union revenues invested into a revolving fund for community projects. Fast-growing and off-season crops are being introduced to provide food security and alternative sources of income for local women. Community radio has been used as a medium for information exchange, knowledge transfer and education.
Agroecological Intensification (AEI)

Improving the performance of farming systems through the integration of ecological principles in farm and system management

• Supporting...
  • Productivity under resource limitations
  • Sustainability, resilience v. shocks, adaptive capacity

• By facilitating...
  • Diversification
  • Flexible options for diverse contexts
  • Social innovation for local adaptation and adoption
Challenge: building the AEI evidence base

• “Modern” farming = energy intensification
  • Inputs homogenize the environment;
  • Inputs largely out of reach for smallholders
• AEI = knowledge intensification
  • AEI = context-responsive → huge data requirements
  • How do we attain that knowledge?
• Massively-parallel research strategies needed
• Hypothesis: farmer research networks (FRN)
Ingredients for an FRN

Social capital: Farmer orgs; innovative intermediaries skilled in facilitation

Technical capital: Viable options meet important problem/opportunity

Methodological capital: MET, participatory methods, adult learning
Rural organizations as potential partners

- NGOs, CBOs, and government extension systems as impressive social infrastructure
- Partners for FRN?

- 6 scoping reports
Role of gadgets

• Optional but exciting
• Do sensors inspire management? (K→A?)
• Reveal and quantify the invisible but important
  • Microbes
  • Mycotoxins
  • Future weather
  • Soil carbon, nutrients, soil biology

PhotoSynQ.org
Need to work on data visualization

Planting date

Yield
Overall vision for FRNs

• Many farmers generate data & share
  • Observational + experimental
• “Value propositions” negotiated among farmers, researchers and extension organizations
  • Germplasm testing, ISFM, IPM, post-harvest issues including value addition and marketing, etc.
  • Finite number of agreed designs
• Individual farmers and farmer groups contribute small amounts of data and access bigger picture
• Support for social/technical innovation processes
• Nifty data kit -- to be designed and implemented