Participatory research and plant breeding in Honduras: Improving livelihoods, transforming gender relations

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15-Feb-16
Outline

- Participatory project overview and outcomes
- Evaluating impacts
- Livelihood impacts
- Impact on gender relations
- Lessons learned
Local Agricultural Research Committees (CIALs)

- Foundation for Participatory Research with Honduran Farmers (FIPAH) supports most CIALs in Honduras
- Partnership between CIALs, NGOs and breeders at Pan American Agricultural School, (Zamorano)
109 CIALs in 139 communities, 15 municipalities, 5 departments in western and central Honduras

Scale up to 191 communities, 173 farmer groups by 2020
The problem we address

Severe food insecurity in Honduran hillsides
Teaching formal research methods to farmers

• Through CIALs farmers learn how to conduct simple experiments in maize and beans
• Poor performance of formal sector varieties
• NGOs-Zamorano look towards participatory plant breeding as a solution
Identifying farmers’ ideal bean traits by gender, Yorito, Honduras, 2000
Identifying farmers’ ideal bean traits by gender, Yorito, Honduras, 2000

- non-trailing bush beans, 35-40 cm in height
- yields of 25-40 pods/plant
- little disease
- even ripening
- thick stem
- rain- and drought-resistant
- thickish pod to prevent sprouting
- 7-8 beans/pod
- longish, thick, heavy bean
- dark reddish colour, shiny
- firm bean skin to prevent pest infestation in storage
- early maturing varieties
- produces a thick soup in the cooking process and doesn’t need lard
- ‘yields’ or expands in the pot
- soft, good tasting bean
- cooks quickly without much fire
- easy to shell
Introducing participatory plant breeding (PPB) into upland communities, 2000-present

- First PPB variety generated from popular landrace with early maturity, selected by CIALs across 2 municipalities, central Honduras
- Landrace crossed with breeder materials at Zamorano and returned to CIALs
- 53 members (23 w, 30 m) from 4 CIALs selected (F3) lines from 120 families
- Originally concentrated in one plot but decentralized at members’ request to community plots to incorporate contextual differences, especially elevation
Learning to select in early generations

- Learning process approach: each of the partners (breeder, NGO, CIALs) learned how to engage in PPB
- CIALs learned to select in segregating populations, ignoring seed colour in early generations
- Members picked up language of science, basic genetics
- Labour-intensive at outset
For women, in particular, involvement in CIALs and PPB has meant acquiring new agricultural knowledge.

- Early gender-specific CIALs became mixed CIALs at members’ request.

- Research was new to all CIAL members encouraging shared learning between men and women.

- Women took seed selection skills out of kitchen into public space.
Farmers and scientists select different materials

- Materials selected on-station by breeder, not selected by farmers, reflecting different conditions and cultural criteria.
- First PPB bean, ‘Macuzalito’, selected by farmers for best overall average traits.
- Selected by both men and women.
Bean release at municipal level

• Macuzalito released in 2004 at the municipal level, four years after process began

• Honduran CIALs/NGOs/Zamorano have generated 23 new bean varieties, most using advanced lines

• Most released at municipal level; one released at the national level in 2014

• Participatory mass evaluation showed that 6 PPB CIAL varieties outperformed formal sector check on all but one criterion – independent of altitude and zone.
Increasing seed supply

- Honduran seed laws currently prevent CIALs selling seed nationally
- Individual seed growers use foundation seed to increase volume of “seed” for sale in local markets
- Profits from local “seed” sales increasingly help to drive long term PPB research
- Credit through the Association of CIALs allows farmers to buy fresh seed and maintain high quality bean grain sales
Evaluating Impacts

• 2003 – Indicator Identification
  • 7 focus groups, 40 before and after interviews

• 2004 – Survey
  • n=300

• 2005 – Participatory Analysis of Survey Results
  • 10 focus groups

• 2006 – Life/Project Histories
  • 31 life histories

• 2011 – Survey of Male Partners
  • 20 men interviewed

• 2013 – Cost/Benefit Analysis of PPB
### Bean Category Adoption Rates by Season across 3 Municipalities in Honduras, 2013

#### Spring 2012 (n=127)

<table>
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<th>Category</th>
<th>PPB</th>
<th>Traditional</th>
<th>Conventional</th>
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<tbody>
<tr>
<td>Old-CIAL</td>
<td>68%</td>
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<tr>
<td>Non-CIAL</td>
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#### Fall 2012 (n=140)

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Kindsvater Daly, 2014, MSc Thesis
Livelihood Impacts

- More poultry
- More pigs
- More pack animals
- More household savings
- Increased household maize yields
- Increased household bean yields
- Increased food security
- Increased links with organizations
Poorest farmers, including women, have been empowered through research

- Women make up 42% of membership in established CIALs supported by FIPAH. Involved in PPB research, validation of varieties, etc.
Women gain social networks, increase social capital

Classen, et al., World Development, 2008
Women acquire confidence to exercise their ‘liberty’

- Participating in organizations
- Occupying positions in the community
- Taking on salaried work
- Administering family finances
- Visiting friends and neighbours
- Working with spouse in the fields

Humphries, et al., World Development, 2012
Women make more decisions

- What crops and where to sow
- Sale of agricultural products
- Joining local organizations
- Managing family finances

Husbands take pride in wives’ skills

- Husbands expressed pride in their wives’ new skills, most likely if husband also a CIAL member
- Woman had to be CIAL member, there was no change in decision-making if only husbands were members. Empowerment earned, not bestowed
- Joint household benefits important for men’s support

CIALs help to promote community development

- Work of the CIALs helps to foster stronger, more prosperous, more open communities
- CIAL members promote local development through community leadership roles
Lessons Learned

• Involving farmers in participatory research and PPB is a long term undertaking, requiring stable funding for different partners
• Research-focused NGOs effectively mediate between breeders and farmers
• PPB varieties have high adoption rates
• Learning to do research gave poor women and men self-confidence
• Self-confidence allowed women to use their liberty effectively and empowered them to make important h/h decisions
Thank You

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