Pluralistic Agricultural Extension in Malawi

Evidence and Lessons from 3 years of Research and Assessments

Lilongwe | November 13, 2019
Pluralistic extension system project (2016-2019)

Main objective

To provide evidence-based policy and strategy support to help coordinate and revitalize the pluralistic agricultural extension services provision in the Malawi

- assess the current status of demand for and supply of services
- monitor progress in key indicators over time
- identify approaches or interventions that worked (did not work)
- inform the extension policy and strategy development
Data Collected

- Household and community surveys
  - nationally representative; 3001 HH; 299 sections in all districts
  - July-Sep 2016; July-Sep 2018

- Census and monitoring of 121 state and non-state extension service providers in 15 districts
  - shaded districts in map on the right
  - Dec 2016 - Mar 2017

- 531 lead farmers interviewed in randomly-sampled communities

- In-depth interviews with 30 service providers and 71 extension workers
  - Dec 2016 - Mar 2017

- Focus group discussions (55 FGDs) (dots on map)
  - Jan/Feb 2017, Jan/Feb 2019

- Census of ASP, DSP, DAECC and DAC in 10 USAID/FtF districts
Positive trends

- High coverage of extension services, comparable to Ethiopia and much higher than Uganda
- Improvements in access to extension services for both women and men (and both youth and non-youth)
- Consistently high subjective ratings from farmers on the usefulness of extension services
- More diversity in extension messages → more information regarding markets, climate change and nutrition
- Greater use of cost-effective tools → radio and community/group approaches
- Greater crop diversification → away from maize or tobacco, more into legumes (although the rate of change is slow)
% of Households receiving agriculture advice

a. In the last 2 years

[Graph showing the percentage of households receiving advice in the last 2 years for various sectors like Agriculture, Nutrition, Ag production, etc.]

b. In the last 12 months

[Graph showing the percentage of households receiving advice in the last 12 months for various sectors like Agriculture, Nutrition, Ag production, etc.]

Collected only in 2018
Access to agriculture advice, by source

a. In the last 2 years

b. In the last 12 months
Access to extension services by method/approach
Improving gender parity in access to extension services

a. Access to agricultural advice in last 2 years

<table>
<thead>
<tr>
<th>Year</th>
<th>Young women</th>
<th>Old women</th>
<th>Young men</th>
<th>Old men</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>57</td>
<td>57</td>
<td>68</td>
<td>76</td>
</tr>
<tr>
<td>2018</td>
<td>60</td>
<td>59</td>
<td>71</td>
<td>78</td>
</tr>
</tbody>
</table>

b. Access to agricultural advice in last 12 months

<table>
<thead>
<tr>
<th>Year</th>
<th>Young women</th>
<th>Old women</th>
<th>Young men</th>
<th>Old men</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>34</td>
<td>34</td>
<td>44</td>
<td>55</td>
</tr>
<tr>
<td>2018</td>
<td>38</td>
<td>35</td>
<td>47</td>
<td>57</td>
</tr>
</tbody>
</table>
Consistently good perception of quality of extension services, but on a decline from 2016 to 2018

- **Was the advice useful?**
  - % of HH not satisfied with advice: 2, 3
  - % of HH very satisfied with advice: 19, 32
  - % of HH reporting not useful advice: 2, 2
  - % of HH reporting very useful advice: 19, 30

- **Were you satisfied with the advice?**
  - % of HH satisfied with advice: 78, 65
  - % of HH reporting useful advice: 79, 68
  - % of HH who acted upon or followed advice: 86, 84
  - % of HH reporting advice needed or wanted: 90, 94

- **Was it something that you needed or wanted?**
- **Did you act upon it or did you follow the advice on?**
- **Was it something that you expressed demand for or have requested?**
National trends revealing areas for improvements

• Extension services led to greater technology awareness
• But, extension services and greater awareness did not translate to great adoption of technologies
• Adoption of most management practices remains very low
• Large gap between technology awareness and adoption
• Farm productivity and commercialization remain low
### Greater technology awareness

<table>
<thead>
<tr>
<th>Technology</th>
<th>% of households</th>
<th>2016</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil cover</td>
<td></td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>Crop rotation</td>
<td></td>
<td>20</td>
<td>26</td>
</tr>
<tr>
<td>Intercropping</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Compost residue incorporation</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Composting pits or piles</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Composting toilets</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Agroforestry</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Bunds or ridges</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Pit planting</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Planting vetiver grass</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Water harvesting</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Manure or fertilizer making</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Including multiple food groups</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Consuming iron-rich foods</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Using iodized salt</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Washing hands</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Orange-fleshed sweet potato</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>PICS bags</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Inoculant</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Aflatoxin control</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Fall army worm control</td>
<td></td>
<td>25</td>
<td>32</td>
</tr>
</tbody>
</table>

*Collected only in 2018*
Improved adoption in some technologies; decline in others

Collected only in 2018
Large gap between awareness and adoption (2018)

- **Soil cover**: Awareness 49, Adoption 6
- **Zero or minimum tillage**: Awareness 59, Adoption 6
- **Intercropping**: Awareness 82, Adoption 82
- **Crop residue incorporation**: Awareness 70, Adoption 41
- **Agroforestry**: Awareness 49, Adoption 6
- **Bunds or ridges**: Awareness 79, Adoption 50
- **Pit planting**: Awareness 66, Adoption 14
- **Planting vetiver grass**: Awareness 32, Adoption 6
- **Water harvesting**: Awareness 12, Adoption 1

% of households
Decreasing productivity in major crops

Yield (kg/ha), rainy season

- Maize: 1343 kg/ha in 2016, 892 kg/ha in 2018
- Rice: 1854 kg/ha in 2016, 996 kg/ha in 2018
- Other cereals: 1052 kg/ha in 2016, 847 kg/ha in 2018
- Tubers/Rootcrops: 2851 kg/ha in 2016, 2456 kg/ha in 2018
- Beans: 892 kg/ha in 2016, 996 kg/ha in 2018
- Groundnut: 996 kg/ha in 2016, 2456 kg/ha in 2018
- Vegetables: 1227 kg/ha in 2016, 909 kg/ha in 2018
- Oilseeds: 847 kg/ha in 2016, 847 kg/ha in 2018

Legend: 
- 2016
- 2018
Level of commercialization for major food crops not improving

Rainy season, 2016 and 2018 comparison

<table>
<thead>
<tr>
<th>Crop</th>
<th>2016</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Rice</td>
<td>28</td>
<td>30</td>
</tr>
<tr>
<td>Other cereals</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Beans</td>
<td>37</td>
<td>26</td>
</tr>
<tr>
<td>Groundnut</td>
<td>28</td>
<td>21</td>
</tr>
<tr>
<td>Vegetables</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>Cassava</td>
<td>1918</td>
<td>3738</td>
</tr>
<tr>
<td>Other tubers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oilseeds</td>
<td>78</td>
<td>63</td>
</tr>
<tr>
<td>Fibers</td>
<td>92</td>
<td>90</td>
</tr>
<tr>
<td>Tobacco</td>
<td>66</td>
<td>91</td>
</tr>
</tbody>
</table>
Detailed studies on effectiveness of extension services or specific approaches

✓ In search of pocket of successes, and what was working and not

• Ideal world, we work with projects to randomize the assignment of the intervention (e.g., extension services/training) while others do not get the intervention and compare the changes over time to measure impact

• Second best scenario, we work with projects and gather data on beneficiaries and comparable control group and see changes of outcomes over time

• Third best scenario, we work with panel data to see who had the “intervention” and who did not get the intervention (control group) and employ strategies like matching or fixed effects to ensure that both groups are comparable

... Integrated household panel survey (2010, 2013, 2016) and IFPRI panel survey (2016, 2018)

... Complemented with FGDs and in-depth interviews
At the national level, does access to extension services have an impact on technology adoption, productivity and food security?

(1) Access to extension services has no impact on technology adoption, productivity, and food security on average at the national level.

(2) Receipt of quality advice or greater intensity of knowledge on certain technology leads to greater adoption and higher productivity and food security.

Quality = Intensive knowledge?  
Quality = Better technologies?
At the national level, does access to extension services (type and source) have an impact on crop and income diversification and dietary diversity?

(1) Adoption of technologies is responsive to extension services provision (there is information barrier) → intensify information promotion in those technologies

(2) Delivery tool or method or source of information matters at times matters for impact

(3) Combination of different tools or methods can enhance impact

(4) Topic of extension services also matters for impact (e.g. marketing)
At the national level, does farmer’s exposure to lead farmers have an impact on technology adoption?

For LF approach to work: regular training of lead farmers; support from AEDOs and the community leaders; transparent and participatory selection process; and greater community sensitization and recognition of the value of lead farmers.

- Many communities do not recognize and value the role of LFs; some are being selected by AEDO or chief head.
- LFs cannot fill the gap or areas where AEDOs are absent or not active. They complement AEDO’s work, rather than substitute it.
At the national level, does participation in Village Agricultural Committees (VAC) have an impact on technology adoption?

- Many of the VACs are not active, never met or met once
- While MV set-up have started, but most are in the early stages of implementation (sensitization stage, some have action plans)
Supply side
Supply side of extension service provision (2017)

- Growing pluralism of extension service provision (121 various organizations working in 15 districts)
- In a typical district, there are about 13 service providers on average (but ranges from 6 in Chiradzulu to 25 in Balaka and 35 in Lilongwe)
Very difficult to get reliable data, but some patterns emerge:

- 1:1 ratio of govt. technical staff to non-govt. technical staff (aggregate)
- 2:1 ratio of govt. frontline workers to non-govt. field officers (aggregate)
- All non-government service providers work with AEDOs
- Farmer-to-govt.-agent ratio is roughly 2,240 or 3,316 (Agr. Census or APES)
- Farmer-to-all agents ratio is roughly 1,544 or 2,294 (Agr. Census or APES)
  - Similar or better than many countries in SSA, but worse than that of Ethiopia and Kenya
- Gender balance, good but can be further improved
  - Roughly 19% and 25% of govt. SMS and frontline workers are female, and 32% for non-govt. female frontline workers
- Most do not have yearly trainings
  - 15% never ever received re-training since becoming extension agent
  - 40-60% had not received any re-training in at least 3 years
  - Training needs assessment (context of pluralism and complementarities)
- Various trainings going on; but largely uncoordinated; we could do a better coordination of these different initiatives
We need look more closely at capacity and incentives in the system

**Lack of comprehensive data on funding for extension**
- Mostly salary (73-83%), and 17-27% operating funds for extension services from public funding in 15 districts surveyed
- Roughly MWK740,000 per AEDO per year or MWK250 per farmer per year from public funding in 15 districts surveyed
- Excludes national level; exclude numerous NGO projects (not willing to share)

**Performance targets (go beyond input metrics)**
- Farmer-to-lead-farmer; Farmer-to-extension-agents
- Most AEDOs and NGOs report on number of trainees → outcomes
  ✓ ICT and data analytics to provide frequent updates of input and performance metrics

**Weak implementation, follow-up, and monitoring capacity**
-- strengthening capacity is a joint responsibility
- Facilitators (AEDOs) were not able to implement and monitor numerous activities and approaches
- Lead farmers were not able to carry on their expected functions
- Community leaders were not able to facilitate transparent selection of lead farmers and monitor them and make sure they do a good job
- System coordination is lacking (government, NGOs and private sector not as competitors but as partners)
  ✓ Active DAECCE working on this; Innovation platforms focusing on priority value chains
Demand-side approaches need to be strengthened

Farmers reported high ratings on the usefulness of extension services . . . but the percentage of farmers requesting or demanding information was very low and decreased over time from 12% in 2016 to 4% in 2018.

While radio coverage is wide, only a few households are member of listening clubs or ICT hubs (2%) or have used call-in services (1%) at national level.

Greater community awareness and sensitization of these demand-side services will be crucial so that more people can benefit from them.

In the FGDs, listening clubs or ICT hubs were seen as useful platforms that strengthened social capital and cooperation among listeners. Moreover, call centers and mobile apps, in which anyone can call or text for free, also helped those who used these services.

Capacity of these ICT-based demand-side mechanisms needs to be strengthened.
What can we do to translate the increased information to lead to behavioral change, technology adoption and development impacts?
Takeaway messages

1. **GO BEYOND INPUT METRICS → BOLD PERFORMANCE TARGET**

2. **INVEST IN IMPLEMENTATION AND COORDINATION CAPACITY & INCENTIVE TOWARDS THAT TARGET**
   
   . . . OFTEN, IT IS NOT THE DELIVERY TOOL OR APPROACH THAT IS THE PROBLEM, BUT THE CAPACITY TO IMPLEMENT AND SCALE THEM UP EFFECTIVELY

3. **FOCUS ON PRIORITY VALUE CHAINS**
   
   (PUBLIC, PRIVATE, NGOS WORKING TOGETHER ON SET TARGETS FOR THESE VALUE CHAINS)

4. **IMPROVE CONTENT AND QUALITY OF EXTENSION MESSAGING TO INDUCE BEHAVIORAL CHANGE AMONG FARMERS TOWARDS ADOPTION (FARM DEMO)**

5. **THOROUGH REVIEW OF TECHNOLOGIES AND PRACTICES (PLATFORMS, ICT)**
Takeaway messages

6. INTENSIFY CAPACITY STRENGTHENING AT GRASSROOT ORGANIZATIONS LEVEL

7. ICT METHODS SHOULD BE PART OF THE PACKAGE OF DIVERSE EXTENSION APPROACHES

8. PROJECT-BASED ADVISORY SERVICE PROVISION WORKS WELL IF IT IS WELL-FUNDED AND PROVIDES “ARTIFICIAL INCENTIVES” TO PARTICIPANTS, KEEP SUSTAINABILITY GOALS ON TRACK

9. INTERVENTIONS SHOULD BE RIGOROUSLY EVALUATED TO KNOW UNDER WHAT CONDITIONS THEY WORK, FOR WHOM, AND AT WHAT COST
For more details of our specific studies:

http://www.ifpri.org/project/pluralistic-extension-system-malawi

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Other key informants
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1. **Niu Chiyu**, PhD graduate from University of Illinois, working with the World Bank
   - “Selective attention and information loss in the lab-to-farm knowledge chain: The case of Malawian agricultural extension programs,” A PhD dissertation paper, published in the *Agricultural Systems* journal

2. **Joanna Chilemba**, MS graduate from LUANAR, working with the MoAIWD

3. **Diston Mzungu**, MS candidate from LUANAR, working with IFPRI
   - “Effect of Farmer Field School on Promotion of Nutrition Messages in Kasungu District,” forthcoming as IFPRI Discussion Paper

4. **Tihitina Tesfaye Andarge**, PhD candidate from University of Maryland
   - “Can information induce farmers to adopt riskier livelihood strategies? Evidence from Malawi,” A PhD dissertation paper, selected paper for presentation during the International Conference for Sustainability and Development, Michigan, USA, October 14-16, 2019

5. **Cynthia Kazembe**, completing her MS thesis on effectiveness of extension approaches

6. **Martha Gazani**, completing her MS thesis on effectiveness of radio listening clubs