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SPIA Briefing Note: Targeting of Agricultural Technologies



Standing
Panel on
Impact
Assessment

November 2024

The collaborative work of CGIAR and its partners across different regions has yielded several agricultural innovations with great potential to benefit farmers in the Global South, by increasing farm productivity, improving resilience or reducing costs or environmental spillovers. One of the key assumptions to materialize these potential impacts is to reach the right end users of these innovations. However, emerging evidence from the 2019–2024 SPIA portfolio on the reach and impacts of CGIAR research and innovations have identified some challenges not only in achieving and sustaining large-scale adoption of innovations but also in reaching farmers that can benefit the most from the technology in question.

Early evidence from the SPIA country-level study in Vietnam showed interesting patterns in adoption of rice varieties with salinity-tolerant traits, with high adoption in some coastal areas but also in less vulnerable areas in the mountains in the north. While, at first sight, this might look like the technology is poorly targeted, we cannot exclude other explanations for this adoption pattern. For example, the salinity tolerance trait could be bundled together with other attributes that are useful for farmers in the mountains. This highlights the complexity in drawing conclusions on targeting based on adoption figures.

For submergence tolerant rice varieties, there is clearer evidence on poor targeting. For example, Yamano et al. (2016) show that in four states in eastern India, the submergence tolerant variety

Swarna-Sub1 was poorly targeted to submergence-prone areas, with only a marginally higher adoption rate among farmers who experienced short-duration submergence (3.6%) compared to the overall adoption rate of 3.4%.

In a more recent study, Dar et al. (2022) make a similar observation. In their control group, they find that adoption is negatively correlated with flood risk. However, the main finding of their study shows a promising solution to this targeting problem. They conduct an experiment in Odisha, India, comparing traditional public-sector extension services with and an agrodealer based approach to increase adoption of Swarna-Sub1. The latter approach included distribution of seed minikits and informational pamphlets directly to agrodealers. They find that compared to the traditional approach, the private-sector partnership approach increased farmer-level adoption by over 50 percent. Importantly, they also find that adoption increased the most among farmers in more floodprone areas, indicating that private-sector partnerships can be efficient in targeting new technologies to the farmers that are likely to benefit the most.

In evaluating labor impacts of both supply-side and demand-side of small-scale mechanization in Ethiopia through a randomized control trial, Godlonton et al. (2024) found that subsidy vouchers to encourage demand for mechanized services are more impactful among female-headed households.

This could indicate that females would like to mechanize, but since they face tighter liquidity constraints, they cannot do so without larger subsidies. While the study does not find evidence of changes to adult farm labor, it suggests reductions in child farm labor. These reductions are larger in female-headed households, implying that that the dissemination of 2WTs at scale may achieve positive impacts on child farm labor by explicitly targeting female-headed households.

In a related study, Teufel et al. (2024) study factors in last-mile delivery of an underutilized vaccine, the Infection-and-Treatment-Method (ITM), in Kenyan dairy systems. Aiming at overcoming barriers to access to the vaccine by improving farmer coordination (the vaccine requires 40 animals to be vaccinated at one event) and liquidity constraints, the project implementation conducted active mobilization of the target population through direct phone calls. However, the intervention was unsuccessful in getting enough pastoralist to participate in the vaccination program, making it unviable. However, despite mobilization through direct phone calls, they were unsuccessful in getting enough farmers to participate in their vaccination program to provide basis for analysis. Regardless, the study brought some learnings about the complexity of the targeted value chain and the willingness of local partners to invest own time and financial resources in a foreign-funded project.

Overall, this ongoing body of work shows that technologies do not always get to the farmers that are projected to have the highest returns. This could be salt tolerant varieties for farmers in coastal areas, flood-tolerant varieties for flood-prone farmers, or mechanization services for females. The body of evidence shows the importance of not only testing interventions to boost adoption, but considering whether the interventions increase adoption the most for high-return farmers.

References

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