Comparing methods to estimate adoption rates: The case of beans in Zambia

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Motivation & Objectives of study

- Varietal adoption of HH surveys mostly rely on farmers' response to varietal identification (name and type)

- Shortcoming is that biased results may occur if identification is not accurate/possible or additional steps may be needed

- Main implication: estimates of impact may be misleading

- This motivated us to implement this study, under the SIAC project

- Objectives were:

  - To test different approaches of collecting variety-specific adoption data, validating them against DNA fingerprinting

  - Determine methods that are more accurate to estimate adoption rates

  - Draw implications on assessing determinants of technology adoption and impact under these methods

Methodology

- Geographic scope: Muchinga and Northern Provinces, Zambia (70% of bean production); 67 villages, 402 farmers

- Piggy back on already planned varietal adoption and impact study by ZARI (supported by PABRA & CIAT)

- Methods tested:

Method	Detail
T	DNA Fingerprinting () as benchmark
A	Farmer elicitation of name (A1) and type (A2) of variety
B	Farmer response on type of variety planted that match seed samples shown by enumerators
C	Taking photos of seeds harvested for later identification by experts
D	Collecting sample of harvested seeds for later identification by experts

Lessons learned and considerations for scaling up

- Results show that estimates of adoption greatly vary depending on the method used

- Though some methods provided overall estimates of adoption close to the "truth", all presented Type I (local variety classified as improved) and Type II (improved variety classified as local) error

- One needs to consider the logistics of implementing the methods (e.g., when is best time to collect information/samples)

- Labeling is key: the more stages when samples are moved, the higher the risk of mixing up labels

- Proper storage of samples is important… some samples were affected by storage pests

Lessons learned and considerations for scaling up (2)

- Farmers mix varieties post-harvest, which is an issue for DNA analysis
- Some methods require additional costs (and logistics) to data collection (p.e., experts)
- Reference library could be extended by adding samples of local varieties (but this is challenging)
- Local capacity needs to be developed for proper DNA fingerprinting