

# Opportunities and challenges of DNA based Adoption/Impact study: Case of Nigeria improved cassava

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- Development oriented Impact assessment often measures impact of adoption on
  - ✓ **Income, food security and poverty**
  - ✓ **Heterogeneity effects – e.g., gender dimensions**
- However, measurement errors in adoption rates introduce bias in impact estimates.
- Sources of measurement error include:
  - ✓ **Contamination and mixed up by distributors and users**
  - ✓ **Wrong identification of improved and traditional varieties**



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- DNA based varietal identification offers a reliable method to accurately identify varieties grown by farmers
- Unlike phenotype-based methods, DNA is independent of environment conditions or plant growth stage
- More abundant than morphological descriptors
- In doing so, it increases the accuracy of measurement of adoption rates.

- Through DNA based varietal identification and precise measurement of adoption rates
  - ✓ Track adoption rates: important for designing dissemination policy
  - ✓ credible identification of the determinants of adoption and dis-adoption
  
- Beyond tracking adoption, it allows credible causal estimation of effects of adoption on possible outcome indicators:
  - ✓ Yield
  - ✓ consumption growth
  - ✓ Poverty and food security

- DNA based VI improves casual identification when used to track adoption
  
- However, It can be:
  - Prone to sampling error, how many samples per plot?
  - Costly ?
  - Requires reliable library, which can be hard
  - Prone to field logistical errors- eg., wrong labelling
  
- Precision issues
  - Cut-off level for identification
  - Discrimination power – cluster analysis

- Estimate cost effectiveness for increased precision
- Important to establish clear field protocols – like the Nigeria case.
- Although costs are going down, need to increase options for service provision in Africa.
- Consensus on best approach for sequencing – Does protocol affect identification?
- Need for the standardized approach for discriminating between improved and landrace/traditional
  - might be crop and/or context specific

# Thank you

