

Agrobiodiversity key for pro-poor development and ecosystem services

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Biodiversity vs Cultivated Agrobiodiversity in agricultural production systems

Wild Biodiversity

Associated BFA: Biological control agents, pollinators, soil microorganisms contribute to the health and functioning of the agroecological production systems

Negative impact of agriculture on biodiversity also well studied

- Adaptation to biotic and abiotic stresses
- Reservoir of genetic resources
- Key for nutrition
- New market opportunities
- Valuable cultural traditions
- Contribution to the provision of ecosystem services



Intraspecific Diversity in Agricultural Production Systems

- Provision of *provisioning* and *cultural services* emphasized historically, as well as
 - Use of specific *adaptive traits* for breeding and marketing
- Role in the provision of *regulating* and *supporting ecosystem services*
- Impact of the counterfactual: *lack of intraspecific diversity* on the provision of these services

Some of the following slides have been removed – material unpublished, under review



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Scaling Up Modality	Description
ADAPTATION	An intervention is scaled up by adapting it to other geographical contexts, different beneficiaries and farming communities, and various target agricultural species.
DIFFUSION	An existing intervention is scaled up by communicating it to new stakeholders and by improving the collaboration and partnership among various stakeholders.
REPLICATION	An existing intervention is scaled up to new stakeholders at different sites.
VALUE ADDITION	An intervention is scaled up so that the same people, performing the same task, can earn more and obtain access to new market opportunities.
TEMPORAL SCALING UP	An intervention which is supposed to be introduced for a limited amount of time is scaled up over a longer time frame.

Source: Bernis-Fonteneau et al. 2023. Scaling Up Pro-Poor Agrobiodiversity Interventions as a Development Option



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Agrobiodiversity interventions for pro-poor development

Crucial role in sustaining ecological functions in agricultural systems
→ Small-scale farmers rely on this diversity to enhance productivity, income, and resilience against unpredictable climatic and economic conditions

Poorer households in rural areas

- are highly dependent on the agrobiodiversity
- cannot afford substitutes
- use agrobiodiversity as a risk-management strategy
- benefit from the use of local varieties/breeds to improve incomes, food security, nutrition, health, local cultural identity





DATAR

Diversity Assessment Tool for Agrobiodiversity and Resilience

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Welcome to **DATAR**

The Diversity Assessment Tool for Agrobiodiversity and Resilience to feed and restore our planet





How can DATAR support the production system

Some examples

- GOALS**
 - Improve productivity under particular environmental conditions
 - Increase sustainability
- ASSESSMENT**
 - Characterization
 - Functional traits
- CONSTRAINTS**
 - Inhibiting policies
 - Insufficient genetic diversity in the production system
- INTERVENTIONS**
 - Community Seed Banks
 - Biodiversity registry
 - Diversity Fairs
 - Registration of farmers' varieties
- MONITORING AND EVALUATION**
 - Diversity benefits
 - Development benefits
 - Interventions



Selecting Target species with the Community

DATAR Database



Filter by Name Filter by Type Filter by: READY NOT READY

List Descriptors Management Market Descriptors Goals Constraint Tree Interventions

 African yam / White Guinea yam <small>Ready for projects</small>	 Alfalfa <small>Ready for projects</small>	 Almond <small>Ready for projects</small>
 Amaranth <small>Not ready for projects</small>	 Apple <small>Ready for projects</small>	 Apricot <small>Ready for projects</small>
 Bambara groundnut <small>Ready for projects</small>		
 Bottle gourd / Calabash <small>Not ready for projects</small>		



Filter by Name Filter by Type Filter by: READY NOT READY

List Descriptors Management Market Descriptors Goals Constraint Tree Interventions

 Asses / Donkeys <small>Not ready for projects</small>	 Cattle <small>Ready for projects</small>	 Chicken <small>Ready for projects</small>
 Dromedaries <small>Not ready for projects</small>	 Ducks <small>Not ready for projects</small>	 Goats <small>Ready for projects</small>
 Horses <small>Not ready for projects</small>	 Pigs <small>Ready for projects</small>	



Filter by Name Filter by Type Filter by: READY NOT READY

List Descriptors Management Market Descriptors Goals Constraint Tree Interventions

 Carp <small>Not ready for projects</small>	 Clam <small>Not ready for projects</small>	 Oyster <small>Not ready for projects</small>
 Salmon <small>Not ready for projects</small>		

Data Collection – surveys

1:12 PM

71%



TEST: TRAINING UGANDA MAY2022 CROP
SITE TWO - PROVINCE B - Lake Albert Crescent



Focus Group Discussion (FGD)



DATA INPUT



OUTPUT TABLES

House Hold Survey (HHS)



DATA INPUT



OUTPUT TABLES

Key Informant Survey (KIS)



DATA INPUT



OUTPUT TABLES

Validation & Decision Making (VDM)

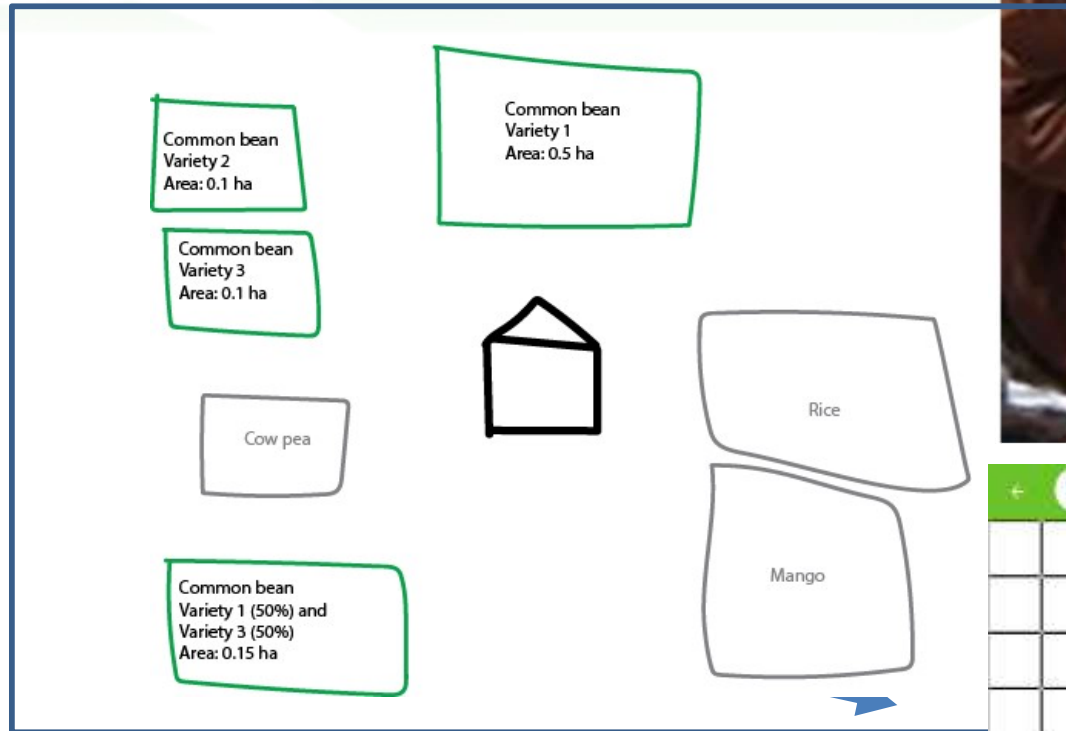


DATA INPUT

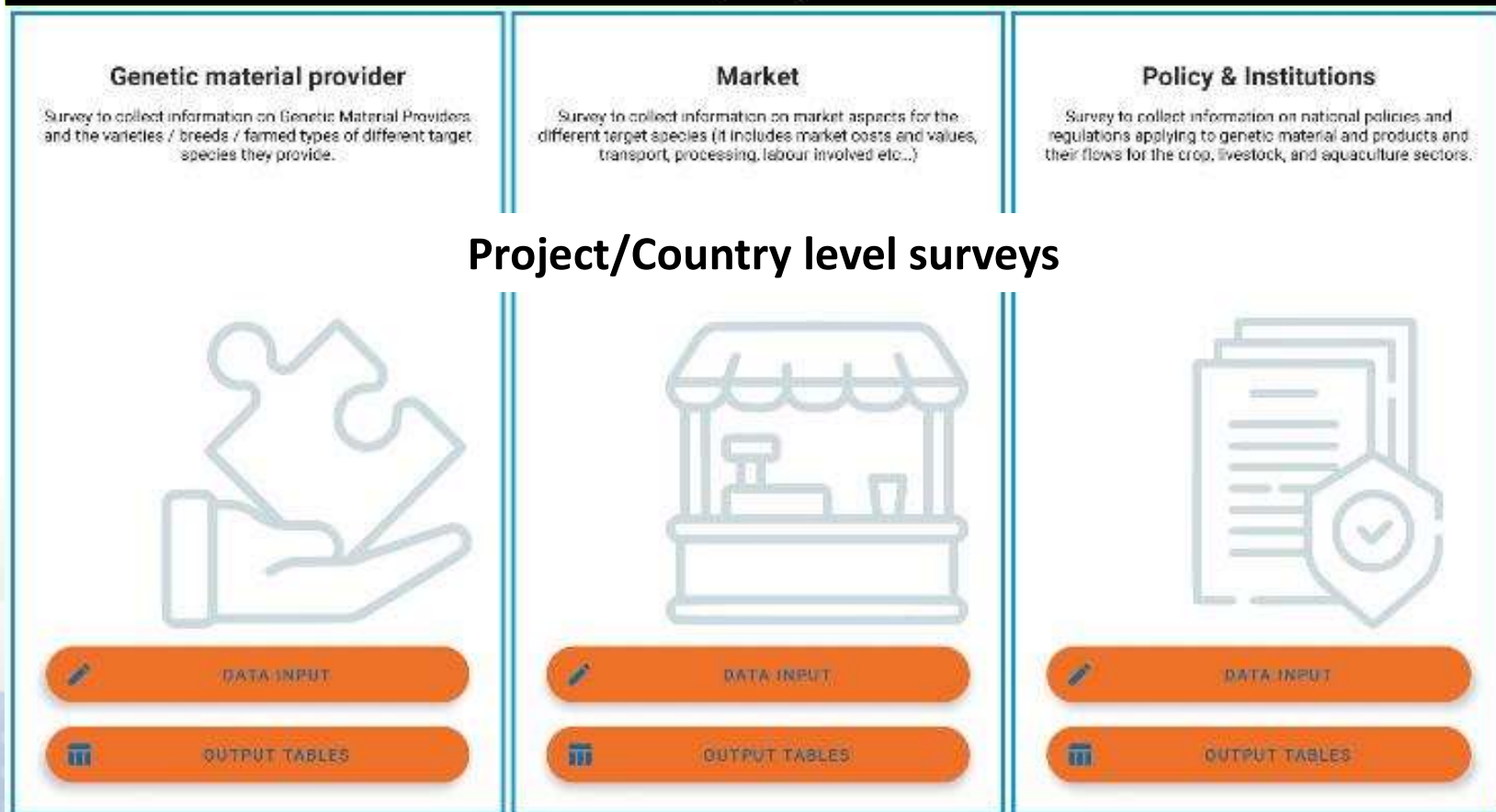
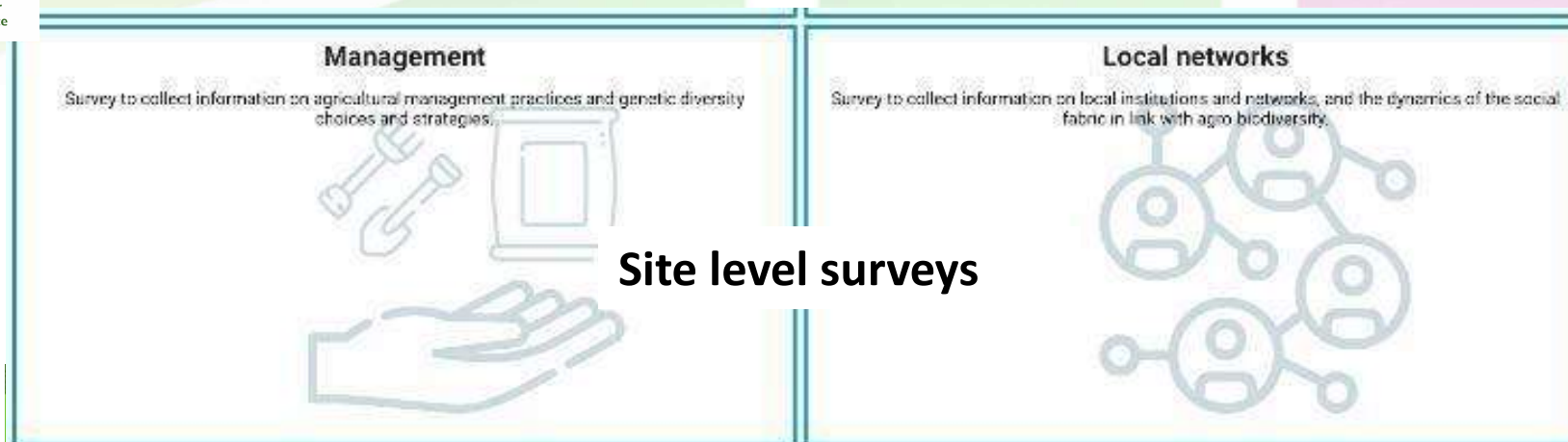


OUTPUT TABLES

Household Surveys



Key Informant Survey (KIS)



DATAR automatically calculates all GEF Tracking Tool for Agrobiodiversity Indicators at project and site levels

Crops

Period in Agrobiodiversity assessment in nine d ...

1 First period of data collection [Back to Project](#)
 From 25 May 2022
 To 10 Sep 2024

[Raw Data Download](#) [Data Cleaning](#) [Cleaned Data Download](#) [Data Analysis](#) [Diversity Table](#) [Goals](#) [Constraints](#) [Interventions](#)

Site:

	Total community Area devoted to the crop	Total community crop area sampled (HA)	Number of Households sampled	Mean crop area by (HA)
Common Bean	380.00	330.3374	89	3.71165
Maize	180.00	90.6370		
Groundnut / Peanut	290.00	352.2997		
Cassava	800.00	438.8942		
Other root	40.00	40.6300		

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Site:

	Min. Plot Area (HA)	% area covered by households	Average HH Richness	Community Richness
Common Bean	0.00000 - 60.00000	34.8	18	
Maize	0.00000 - 800000	24.8	13	
Groundnut / Peanut	0.00000 - 20.00000	68.1	14	
Cassava	0.00000 - 949.00000	22.8	17	
Other root	0.00000 - 1.00000	87.3	10	

Project in Uganda

Agrobiodiversity assessment in nine d ...
 Plot: Pango (Site: Project 0: 1024-78)
 Location: Pango, District of Kamukungu, Uganda

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Site:

	% number of instances of the community dataset	Average HH Richness	Community Richness	Diversity
Common Bean	29.138	0.27	0.27	0.83
Maize	47.078	0.11	0.11	0.81
Groundnut / Peanut	25.130	0.16	0.16	0.81
Cassava	16.631	0.3	0.47	0.86
Other root	85.720	0.00	0.18	1.00

10 categories of agrobiodiversity-related interventions

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VIEW LEGEND

<p>Improving availability of materials</p> <ul style="list-style-type: none"> <input type="checkbox"/> Reintroduction of materials from ex situ collections <input type="checkbox"/> Reintroduction of materials from similar environments <input checked="" type="checkbox"/> Seed Cooperative for collection, distribution and multiplication of seeds <input checked="" type="checkbox"/> Community Seed Bank <input checked="" type="checkbox"/> Community Gene bank <input checked="" type="checkbox"/> Community managed nurseries <input checked="" type="checkbox"/> Diversity Field Fora (DFF) & Diversity Field School (DFS) <input type="checkbox"/> Diversity Kit <input checked="" type="checkbox"/> Diversity Fairs <input type="checkbox"/> Seed vouchers <input checked="" type="checkbox"/> Reduce transportation costs of traditional 	<p>Improving information and availability of information</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> On-farm Diversity blocks <input type="checkbox"/> Field or Laboratory trials comparing traditional and modern varieties <input checked="" type="checkbox"/> Community Biodiversity Registries <input type="checkbox"/> Literacy training particularly for poor and vulnerable groups <input checked="" type="checkbox"/> Variety information data bases made in farmer friendly formats <input checked="" type="checkbox"/> Setting up information systems and internet connections for farmer access to information <input type="checkbox"/> Small weather stations that can be linked to internet sites <input type="checkbox"/> Rural radio program that includes talks on the importance of crop biodiversity <input type="checkbox"/> Drama, music and poetry traveling shows that have crop biodiversity as the theme 	<p>Improving traditional variety materials and their management</p> <ul style="list-style-type: none"> <input type="checkbox"/> Participatory crop improvement (Grassroots breeding; Participatory Plant Breeding; Participatory Varietal Selection, Evolutionary breeding) <input type="checkbox"/> Using genomics to improve in situ crop populations <input type="checkbox"/> Changing the formal breeding institutions to increase the use of farmer selection materials and traditional varieties in their programs <input type="checkbox"/> Planting of intra-specific mixtures to reduce pests and diseases <input type="checkbox"/> Improve seed storage facilities and methods <input type="checkbox"/> Seed cleaning/seed treatment 	<p>Improved Processing</p> <ul style="list-style-type: none"> <input type="checkbox"/> Shift retailers to use different processing equipment that can use diversified materials <input type="checkbox"/> Training of producers in improved processing 	<p>Alternatives and modification to seed certification systems</p> <ul style="list-style-type: none"> <input type="checkbox"/> Plant varieties common knowledge (VCK) <input type="checkbox"/> Registration and release of farmers' varieties with acceptance of enhanced bulk varieties <input checked="" type="checkbox"/> Geographic Indications <input type="checkbox"/> Quality declared seed (QDS) - that certify the vendor rather than the seed <input type="checkbox"/> Truthfully labeled seed Laws that focus on seed quality rather than seed purity <input type="checkbox"/> Registries of native crops <input checked="" type="checkbox"/> Links between intellectual property rights protection and benefit-sharing <input type="checkbox"/> Plant variety protection systems adapted to farmers varieties <input type="checkbox"/> Benefit sharing to farmer communities for traditional variety access and use <input type="checkbox"/> Participatory guarantee system
<p>Market creation and market promotion</p> <ul style="list-style-type: none"> <input type="checkbox"/> Market promotion through taxes and subsidies <input type="checkbox"/> Market creation for traditional varieties or products from traditional varieties including niche markets <input type="checkbox"/> Education and financial support to farmers' groups to develop a marketing strategy <input checked="" type="checkbox"/> Micro credit facilities to set up small businesses particularly for rural men and women <input type="checkbox"/> Advertisement campaigns to improve consumer and retailer awareness of important traits (nutritional, adaptive) <input type="checkbox"/> Cook books with traditional recipes, gardening books that promote traditional varieties for particular management practices <input type="checkbox"/> Fair trade price premiums - Eco-labeling (paying the full production value through price premiums) 	<p>Building Partnerships and Trust</p> <ul style="list-style-type: none"> <input type="checkbox"/> Private and public partnership for the construction of small infrastructure for the production of a better quality product <input type="checkbox"/> Strengthened and cooperative extension service that includes farmers, are more demand driven or establishment of new farmer-governed local institutions 	<p>Changing norms</p> <ul style="list-style-type: none"> <input type="checkbox"/> Advertising and social campaigns that promote better adapted varieties that reduce need for chemical inputs to change social norms such as nutritional cultural values of food <input type="checkbox"/> Academic curriculum include traditional crop varieties as an agricultural resource and ecosystem service <input type="checkbox"/> Gender sensitive response policy <input type="checkbox"/> Strengthen and/or establish training programmes and extension services that include crop specific diversity 	<p>Promoting ecological land management practices</p> <ul style="list-style-type: none"> <input type="checkbox"/> Environmentally sensitive areas (ESA) include high agrobiodiversity areas <input type="checkbox"/> Establish and/or strengthen the management of Agrobiodiversity Zones <input type="checkbox"/> Agrobiodiversity Ecotourism <input type="checkbox"/> Organic farming and organic seed breeding with traditional variety used as planting materials <input type="checkbox"/> Investment in agricultural research that includes the use of agricultural biodiversity within the production system <input type="checkbox"/> Agricultural biodiversity included in Environmental Impact Assessment of individual projects, policies and programmes 	<p>Payment schemes for ecosystem services</p> <ul style="list-style-type: none"> <input type="checkbox"/> Payment for Environmental Services (PES) schemes are established or reinforced <input type="checkbox"/> Linking upstream and downstream communities <input type="checkbox"/> Sharing of monetary benefits



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 **PAR** PLATFORM FOR
AGROBIODIVERSITY
RESEARCH

Thank you!



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