

Community Seedbanks in Uganda: Fostering Access to Genetic Diversity and Its Conservation

Rose Nankya ^{1,*}, Abdel Kader Naino Jika ², Paola De Santis ², Hannington Lwandasa ³, Devra Ivy Jarvis ^{2,4,5} and John Wasswa Mulumba ³

SUPPLEMENTARY MATERIALS

1. FIGURES

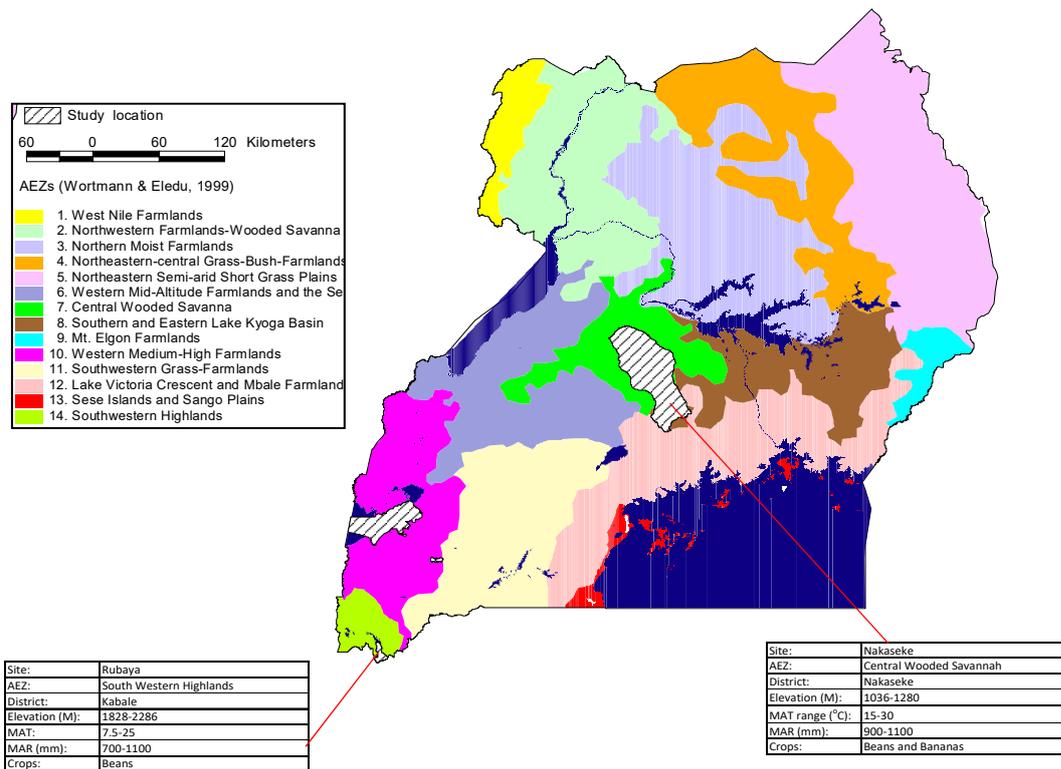


Figure S1. Map of Uganda showing where Nakaseke, Kibuga and Rubaya community seedbanks are located.

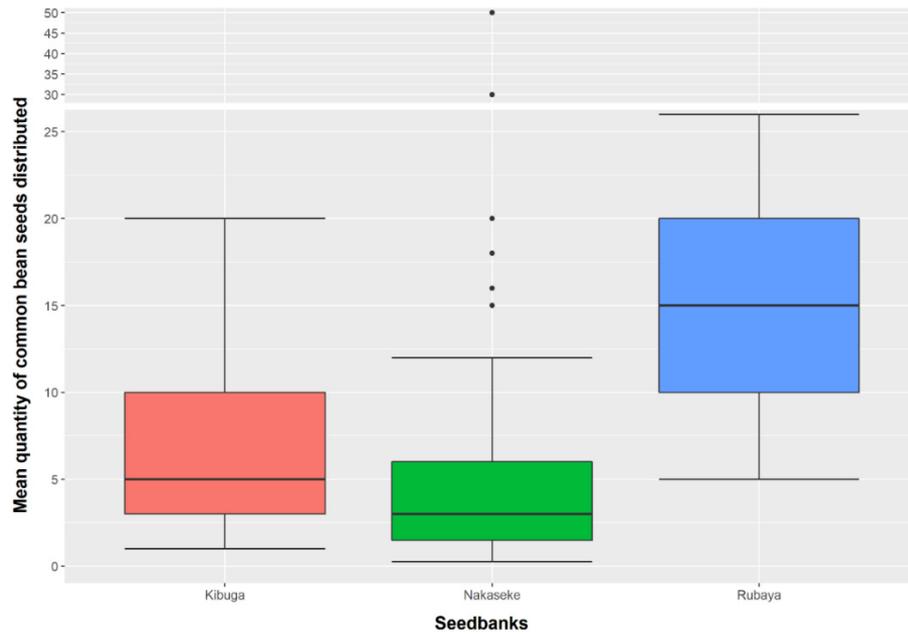


Figure S2. Box plots of the mean quantity of common bean seed (kg) distributed by each seed bank over the study period (Nakaseke and Rubaya 2017-2020; Kibuga 2018, 2019 and 2020).

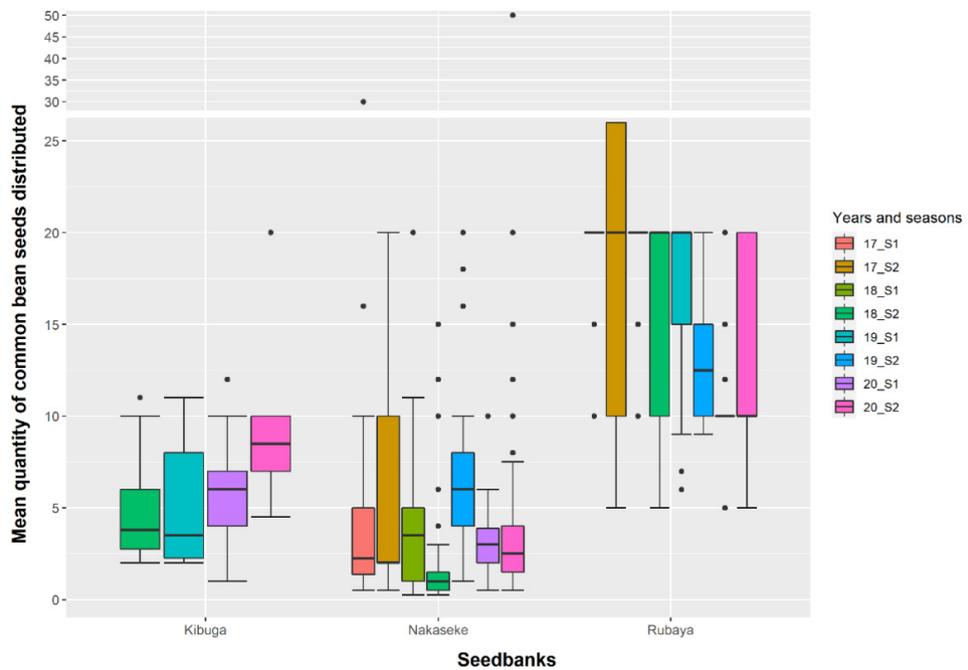


Figure S3. Box plots of the mean quantity of common bean seed (kg) distributed by the seedbanks in each of the two growing seasons from the year 2017 to 2020.

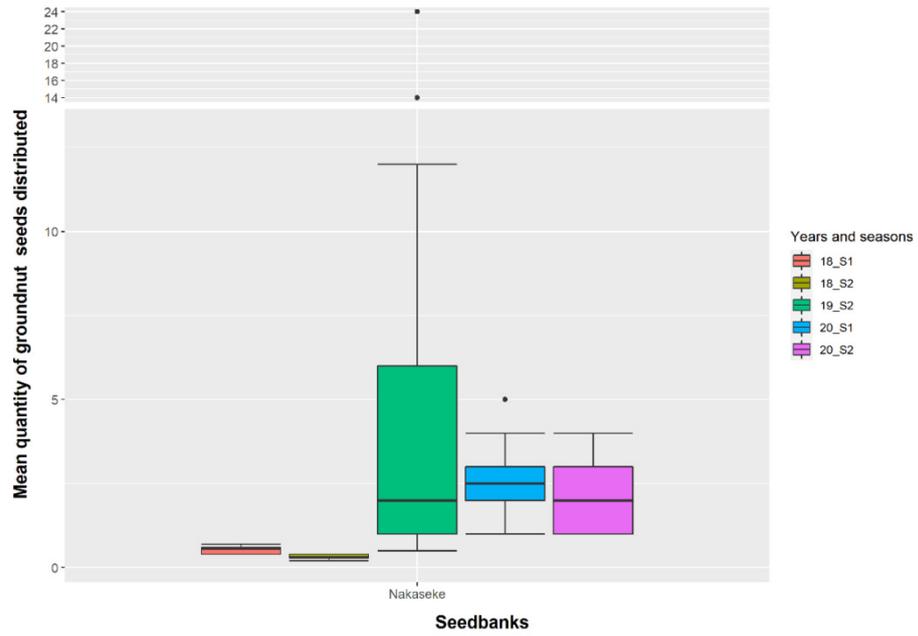


Figure S4. Box plots of the mean quantity of groundnut seeds (kg) distributed by Nakaseke seedbank in the two growing seasons of 2018, 2019 and 2020.

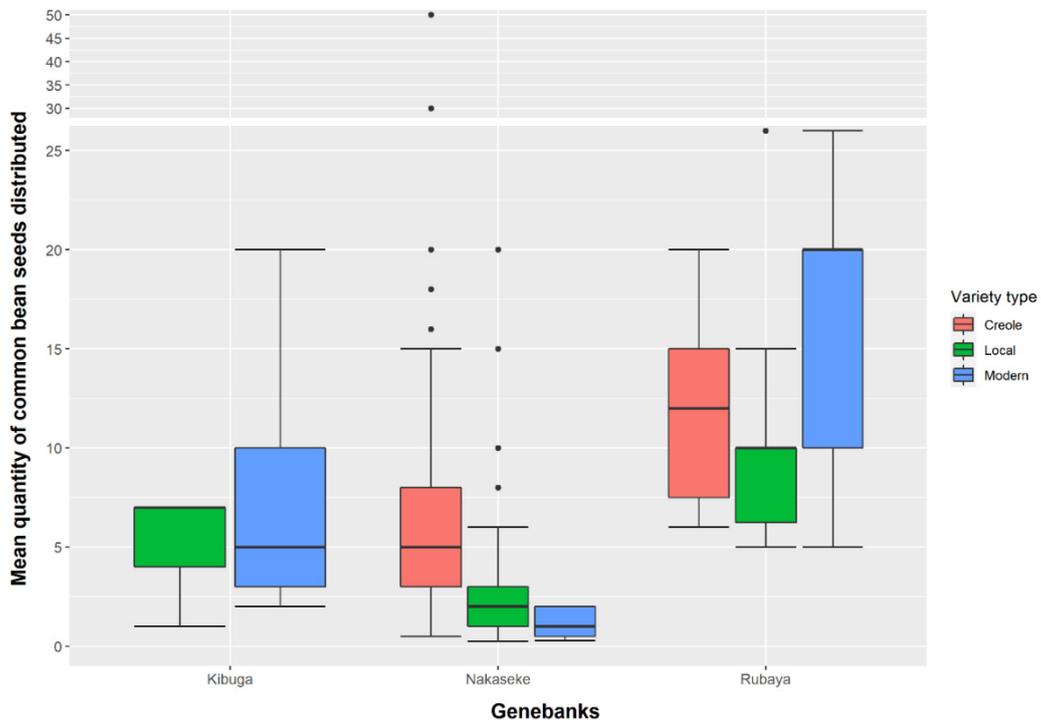


Figure S5. Box plots of the mean quantity of common bean seed (kg) of each variety type distributed by the seedbanks.

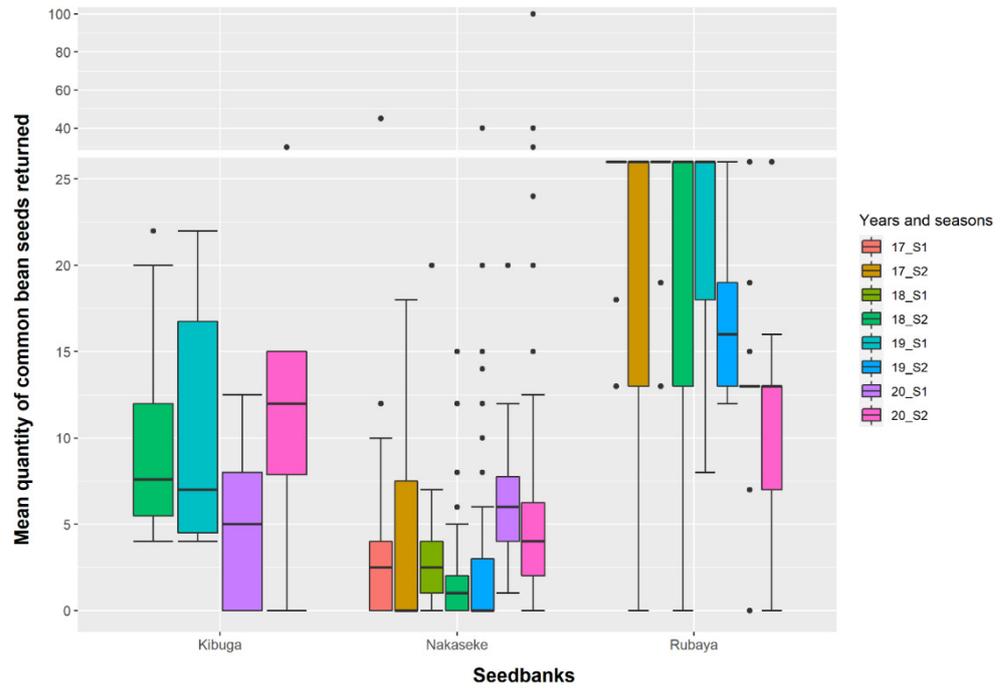


Figure S6 . Box plots of the mean quantity of common bean seeds (kg) returned every season to the respective community seedbanks during the study years.

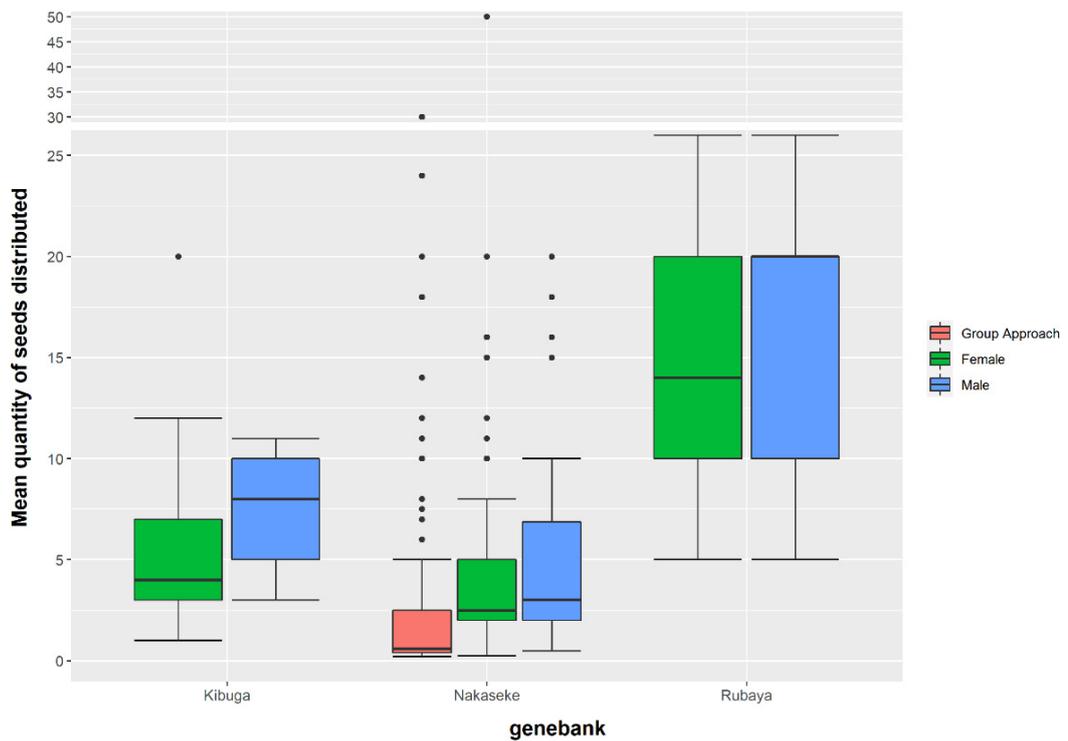


Figure S7. Box plots of the mean quantity of seeds (kg) distributed by gender in each seedbank.

2. TABLES

Table S1. Characteristics of the studied CSBs

Characteristic	Kibuga	Nakaseke	Rubaya
Year of establishment	2018	2014	2012
Type of ownership	Communal but in the process of forming a community-based organization	Communal but in the process of forming a community-based organization	Private by Kagyera Bataka Farmers group
Seed distribution mechanism	Individuals	Individuals and groups	Individuals
Returning mechanism	Twice the amount borrowed in kg	Twice the amount borrowed in kg	One and a half of the quantity borrowed in kg
Management	Committee that reports to the general community	Committee that reports to the general community	Committee that reports to the management committee for the Kagyera Bataka Farmers Group
Number of Common bean varieties conserved	14	31	7
Creole varieties	1	2	-
C. bean local varieties	2	22	2
C. bean modern varieties	11	7	5
Number of groundnut varieties conserved	-	28	-
Local g. nut varieties	-	12	-

Modern g. nut varieties	-	16	-
-------------------------	---	----	---

Table S2. Summary statistics of the quantities of seeds distributed, returned and balances of seed that had not yet been returned to the seedbanks over the study period

Seed bank	Species	S L	varieties	Mean QD	SD QD	Mean QR	SD QR	Mean B	SD B
Kibuga	C. beans	41	9	6.222	3.902	9.363	7.002	3.08	4.668
Nakaseke	C. beans	453	46	4.171	4.604	4.523	7.440	3.829	6.625
	Groundnut	172	26	2.844	2.697	3.575	5.689	2.134	5.876
Rubaya	C. beans	175	13	14.920	5.804	18.023	7.667	1.785	4.196

SL: Number of seeds lots, QD: quantity distributed from seedbank; SD: standard deviation; QR quantity returned to seed bank; B: balance which is seed not yet returned.

Table S3. The monthly rainfall totals in mm of rainfall received in Nakaseke from January 2019 to August 2021.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	94.8	76	90.1	159.9	181.3	170.7	25.4	83.9	173.6	293.8	175.7	232.2
2020	92.7	131	304.1	169	203.4	40.7	87.7	139.8	127.5	177.6	284.5	137.2
2021	105	48.8	147.8	191.9	295.2	40.1	56.2	210.2				

Source: Uganda Meteorological Authority, September 2021

Table S4. Quantity of groundnut seeds (kg) borrowed and returned in the respective seasons in Nakaseke seedbank.

year	Season 1		Season 2	
	Total Quantity borrowed (Kg)	Total Quantity returned (Kg)	Total Quantity borrowed (Kg)	Total Quantity Returned (Kg)
2018	52	253	37	164
2019	61.65	95.75	230	95.75
2020	77	148.5	80	82.5

Table S5. Summary statistics about the access to seed by the two gender groups

CSB	Species	Gender	S L	Varieties	Mean QD	SD QD	Mean QR	SD QR	Mean B	SD B
Kibuga	Common bean	Female	29	9	5.728	4.114	8.445	6.432	3.01	4.039
		Male	12	4	7.417	3.175	11.583	8.084	3.25	6.137
Nakaseke	Common bean	Female	163	19	4.716	5.338	5.144	9.905	4.288	6.120
		Male	67	13	5.724	5.316	5.799	6.813	5.649	9.343
	Groundnut	group	233	41	3.306	3.502	3.681	5.071	2.947	5.843
		Female	53	16	2.170	0.985	2.849	2.299	1.491	2.185
Rubaya	Common bean	Male	20	12	2.375	0.809	3.375	2.465	1.375	2.345
		group	99	26	3.299	3.399	4.008	7.226	2.632	7.487
	Common bean	Female	84	10	14.821	5.889	81	17.778	2.125	4.133
		Male	82	9	15.768	5.509	81	18.926	1.804	4.252
		Not recorded	9	3	8.111	2.421	9	12.111	-1.567	2.954

SL: number of seeds lots, SD: standard deviation; QD: quantity distributed from the community seedbank; QR: quantity returned to community seedbank, B: balance, which was seed not yet returned to the community seedbank