



Sierra Leone, Rapid Seed System Security Assessment November 22- December 4 2014

OVERVIEW

This rapid seed system security assessment (SSSA) took place late November- early December 2014. Multiple signals suggested that seed security could be compromised for the upcoming season (April-May 2015) and the SSSA was scheduled to separate out numerous reports from what was actually unfolding on the ground. Among the reported threats:

- Sierra Leoneans spend 50 to 70% of their income on food, and especially rice. While the country is a net importer, cheap rice imports from Asia and elsewhere were reported as dropping with some news items suggesting a 30% increase in rice prices, just in the May to August period.
- Internal local markets, which routinely provide farmers with both food and seed had been officially banned.
- In some zones farmers were reported as abandoning farming all together or harvesting little due to poor farm management linked to Ebola stress.

These trends, bundled together, suggested possible reduced outside supplies and reduced internal market supplies. They also raised the possibility that farming families would be pressured to eat what is immediately available in their own stocks, including their seed. Just as important, because of market truncation, farmers were projected to have difficulty selling at fair price the harvests just being gathered and threshed—which, in turn, would affect their ability to top-off seed from on farm supplies.¹

¹ Varied links reported these stresses.

<http://www.fao.org/3/a-i4096e.pdf#page=13>)

<http://dqcorner.ifpri.info/2014/10/09/preventing-an-ebola-related-food-crisis/>) .

<http://www.usaid.gov/sites/default/files/documents/9276/10.08.14%20-%20USG%20West%20Africa%20Ebola%20Outbreak%20Fact%20Sheet%20%232%20FY%2015.pdf>

THE ASSESSMENT SCOPE AND METHODS

The assessment was a rapid one and focused on seed security needs for the upcoming season. Hence, it addressed possible acute stresses (rather than chronic concerns or developmental opportunities). The SSSA fieldwork was timed to coincide with the harvest period, with harvests in the upland areas near finished, and those in the lowland zones scheduled for December 2014/January 2015.

While this SSSA can inform a first set of aid responses, a follow-up field assessment is scheduled for nearer to planting time, in the February/April 2015 period – as farmers gather and finalize their seed supply. Simply, the Ebola outbreak and the restrictions mean that the seed security situation in Sierra Leone could be a fluid one.

Site Choice

Three sites were chosen for assessment with the aim being to garner a snapshot of three distinct seed security scenarios.

The SSSA unfolded in the districts of Kailahun, Bombali, and Koinadugu which were chosen for the following reasons:

- Kailahun was the first-affected district and hard hit by the disease. It is also in the southeast near to the borders of Liberia and Guinea, both of which were closed;
- Bombali: was a district later affected by Ebola but was a hot spot during the assessment;
- Koinadugu, is a district in the northern area and was relatively unaffected at the time of the survey. (Only one chiefdom was affected during the assessment and the SSSA explicitly took place in a chiefdom not directly touched by the disease).

Figure 1 charts assessment site placement and Table 1 provides more information on the exact chiefdoms and villages canvassed.

Figure 1: Sites of SSSA Nov/Dec 2014

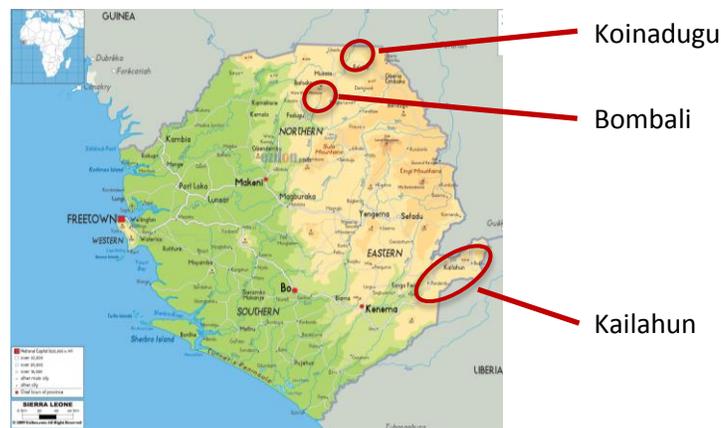


Table 1. Descriptive information on SSSA sites selected

District	Chiefdom	Town	Comment
Kailahun	Kissi-Teng Upper Bambara Peje Bongre	Chiefdom Headquarter' Towns	Kissi-Teng chiefdom was the 1 st affected and the most affected chiefdom in the district Upper-Bambara was the 2nd most affected chiefdom in the district Peje-Bongre was the 3rd most affected chiefdom in the district The team conducted focus groups in Kpondu, the first village affected by the disease in Sierra Leone. Household interviews and vendor interviews were conducted in the Koindu, the chiefdom headquarter town. The chiefdom headquarters' towns were chosen for their accessibility considering the limited time available.
Bombali	Binkolo-Mafaray	Binkolo	Binkolo-Marafay was affected by the disease but was not under quarantine during the assessment. For the team members' safety, the team did not conduct household interviews in a hot spot cimmunity.
Koinadugu	Dembelia-Sinkunia	Sinkunia	Dembelia-Sinkunia chiefdom was chosen because it was free of Ebola during the time of our assessment and had not been affected. The only affected chiefdom in the district at the time of the survey was Neini located in the South of the district far away from Sinkunia located in the North of the district.

Methods used

The methods of the SSSA combined a mix of quantitative and qualitative tools, aiming to gather data from varied stakeholder views (see seedsystem.org for well-tested methodology and technical notes). For a quick survey, a fairly large sample size was achieved, with both the supply and demand side being given important focus.

Table 2. Methods used for Rapid SSSA Sierra Leone Nov/Dec 2014

Type of Investigation	Commentary
Farmer interviews (N=273) (about 90 per site)	<ul style="list-style-type: none"> • Agricultural trends – acute/chronic • seed source patterns/input use • quantitative seed-use analysis • crop production results
Focus group discussions (N=4) --- Community-based --- Women's group	Separate community + women- only focus groups <ul style="list-style-type: none"> • Harvest analysis • Crop profile priorities and changes • seed source strategies, by crop • community seed security assessment
Trader/ Vendor Interviews (N=10)	<ul style="list-style-type: none"> • Analysis of supply of goods • Price verification • Constraints/opportunities for commerce tied to Ebola context

FINDINGS

HARVESTS

Farmers were asked to report production, crop by crop. There were harvest dips in Kailahun, with a 1/3 assessing harvests as poor (in relation to normal) and 2/3 reporting them as good or average (Table 3A). However, even in the later- but intensely-affected areas such as Bombali, over 90% of farmers indicated harvests as good or average (Table 3B) and overall, the picture is quite positive with all sites combined (Table 4 -- over 85% of cases good or average).¹

Table 3: Farmers' assessment of production by site, and by crop. current/most recent season

A. Kailahun

Crop	N total	How was yield?					
		N			%		
		Good	Average	Poor	Good	Average	Poor
Rice	94	34	27	33	36.2%	28.7%	35.1%
Cassava	22	10	8	4	45.5%	36.4%	18.2%
Groundnut	28	8	7	13	28.6%	25.0%	46.4%
Green veg	7	0	1	6	0.0%	14.3%	85.7%
TOTAL-all crops*	245	103	64	78	42.0%	26.1%	31.8%

B) Bombali

Crop	N total	How was yield?					
		N			%		
		Good	Average	Poor	Good	Average	Poor
Groundnut	92	49	37	6	53.3%	40.2%	6.5%
Rice	78	31	37	10	39.7%	47.4%	12.8%
Cassava	38	25	11	2	65.8%	28.9%	5.3%
Pepper/piment	22	13	6	3	59.1%	27.3%	13.6%
Sweet potato	12	9	3	0	75.0%	25.0%	0.0%
TOTAL-all crops*	272	146	102	24	53.7%	37.5%	8.8%

C) Koinadugu

Crop	N total	How was yield?					
		N			%		
		Good	Average	Poor	Good	Average	Poor
Rice	129	85	43	1	65.9%	33.3%	0.8%
Groundnut	92	63	26	3	68.5%	28.3%	3.3%
Pepper/piment	53	32	18	3	60.4%	34.0%	5.7%
Cassava	28	17	11	0	60.7%	39.3%	0.0%
Sweet potato	14	12	2	0	85.7%	14.3%	0.0%
TOTAL-all crops*	339	225	106	8	66.4%	31.3%	2.4%

* includes minor crops

¹ We note that this is an ongoing situation with lowland harvests still to be fully confirmed.

Table 4: Farmers' assessment of production all sites combined. current/most recent season

Crop	N total	How was yield?					
		N			%		
		Good	Average	Poor	Good	Average	Poor
Rice	301	150	107	44	49.8%	35.5%	14.6%
Groundnuts	212	120	70	22	56.6%	33.0%	10.4%
Cassava	88	52	30	6	59.1%	34.1%	6.8%
Pepper/ Piment	79	48	25	6	60.8%	31.6%	7.6%
Sweet Potato	26	21	5	0	80.8%	19.2%	0.0%
Maize	18	10	4	4	55.6%	22.2%	22.2%
TOTAL-all crops*	856	474	272	110	55.4%	31.8%	12.9%

* includes other crops, not listed here, that feature in only one District

The crop production dips in harvest in Kailahun seem to be especially tied to the timing of crop management and labor operations. A community interview in Kailahun charted the varied constraints (Table 5).

Table 5. Community interview- Kailahun- 24 November, 2014- why declines in Kailahun-timing of Ebola

Key crops	Current season: Good , average, poor-by key crop	Comments
RICE	POOR	Ebola disease came at the beginning of the rainy season causing delay in sowing. Also, people who were sick or households who have sick people could not clean their fields.
CASSAVA	POOR	Cassava is planted after having harvested Rice; Cassava was affected as well due to the late planting and harvesting of Rice
BEANS	POOR	Beans are planted in association with Rice; since the Rice farming was delayed, this also affected Beans
GROUNDNUT	POOR	Groundnut was worse compared to other crops; the sowing period of Groundnut coincided with the midst of the disease
MAIZE	POOR	Maize is the first crop to plant; the disease started exactly at this time; then they could not clean their fields so that everything got dry.

MARKETS

Market days were being held at every site sample (despite reports of their being banned). However, multiple restrictions and negative trends were noted by vendors.

- Overall: there were fewer customers (as people not moving)
- Market outlets were restricted to local ones (before vendors used many markets, weekly ones, to make sales)
- No goods were moving in from Guinea and Liberia
- Microfinance institutions giving less/no credit (so eating into their capital)
- ‘Top-up’ cell phone only business still good (that use of scratch cards to buy time.)
- Transport costs much higher (esp when one had to go to Kenema to get goods for Kailahun).

It is notable that significant shortages of local goods were not reported. (and there was no evidence of projected decreases in local, potential seed supply). , e.g.

- In Kailahun- the most Ebola affected area, informants said that prices had not increased at all for local rice.
- For imported rice, the figures last year versus this year were recorded as follows : 135,000 LL for 50 kg versus 140,000 LL²now, so price increase of 3.7%

Vendors did suggest that prices rise when goods have to be brought in from neighboring regions—e.g. from Kenema to Kailahun , a distance of about 90 km/50 miles

Table 6. Vendor (Kailahun based) reported prices signalling transport, November 25 2014

Item	Price Now	Price Last Year at the same period
Transport to Kenema (go and come)	50,000 LL	40,000 LL
Onion	130,000 LL the bag of 50 kg + 10,000 LL for transport of the bag	100,000 LL the bag of 50 kg + 5,000 LL for transport of the bag
Sugar	130,000 LL the bag of 25 kg + 5,000 LL for the transport of the same bag	100,000 LL the bag of 25 kg + 3,000 LL for the transport of the same bag
Groundnut	500,000 LL the bag of 70 kg + 20,000 LL for the transport of the bag	300,000 LL the bag of 70 kg + 10,000 LL for the transport of the bag
Beans	200,000 LL the bag of 50 kg + 10,000 LL for the transport of the bag	150,000 LL the bag of 50 kg + 5,000 LL for the transport of the bag

² Currency exchange rate was posted at 1.00 USD= 4247 SLL at time of SSSA.

PRICES

Community interviews also showed real price rises mainly in the heart of the first- affected Ebola area, Kailahun. Relatively normal price stability was elsewhere—(especially in reference to local goods) (Tables 7 A, B, and C).

Table 7: Community-based interviews, November 2014. Three regions of Sierra Leone

A. Kailahun : men and women focus groups (two interviews) November 2014

Crop	Price/unit 'now'	Price/unit last season, comparable period
RICE	150,000 L for a bag of 50 kg	100,000 L for a bag of 50 kg
BEANS	1,500 L per cup	1,000 L per cup
CASSAVA	N/A	N/A

B. Bombali : Men's interview, November 2014

Crop	Price/unit 'now'	Price/unit last season, comparable period
RICE	50,000 L for a bushel	40,000 L for a bushel
GROUNDNUT	150,000 L a bag (not processed)	130,000 L a bag (not processed)
CASSAVA	N/A	N/A

C. Koinadugu: mixed community group, November 2014

Crop	Price/unit 'now'	Price/unit last season, comparable period
RICE	2,000 L per TP	2,000 L per TP
GROUNDNUT	4,000 L per TP	3,500 L per TP
CASSAVA	N/A	N/A

For markets, the November 2014 quick review suggested they are functioning locally. Key for assessing seed security is that local goods (seed supplies) are especially in place. While possible price rises need to be mapped more comprehensively, the quick SSSA review suggests that for local products (especially agricultural goods) prices are being reported normal or even low (given that goods cannot freely flow out of local zones). It is when importing products (due to transport, fuel costs) that prices seem to markedly rise. (e.g. Table 7A)

Price rise general; indications, November 2014: *(need to be verified further esp to distinguish local and imported goods)*

Kailahun- up 50%

Bombali- 15 to 20%

Koinadugu- modest rise

SEED SPECIFIC ISSUES: SOWING RATES AND TRENDS

To understand any possible vulnerability, the SSSA team asked farmers to compare last season 2014 for upcoming season 2015 quantities of seed they sowed with what they would normally sow at the same period each year. This was done crop by crop for the three major crops , rice, groundnut and cassava. Basically, the question was this: Were amounts sowed (or projected to be sowed) ‘normal’ or ‘different’ from what farmers usually do, as gauged by the farmers themselves?

Sowing rates reported by farmers for the three major crops – rice, groundnut and cassava-- showed that **Ebola had an impact only for the current season (that just finished) and only in Kailahun. Elsewhere, trends hover around normal or are positive** (with +/- 10% variation). It is in Kailahun also that there seems to be a desire to ‘bounce back’ for next season, and sowing amounts will be greatly increased (especially as projected for rice). Farmers intend to intensify planting.

Table 8. Farmer reported sowing amounts for current (last season 2014) and season (early 2015) , in relation to normal sowing rates

A) KAILAHUN- heart of early Ebola

Crop	N (HHs)	Average change sowing quantities (%)	
		Current season	Next Season
Rice	89	-7.1	+210.7
Cassava	24	-15.8	+35.7
Groundnut	30	-29.0	+38.2

B) BOMBALI- later Ebola infection

Crop	N (HHs)	Average change sowing quantities (%)	
		Current season	Next Season
Rice	60	+10.7	+12.9
Cassava	29	+19.5	+15.6
Groundnut	73	+11.6	+18.3

C) KOINADUGU- in north- largely removed from Ebola

Crop	N (HHs)	Average change sowing quantities (%)	
		Current season	Next Season
Rice	83	-3.2	-0.1
Cassava	19	-7.8	+5.0
Groundnut	67	-2.9	-2.0

Focusing on potential problems areas + spurring production

The relatively normal picture for late 2014/early 2015 period should not obscure that there may be vulnerable populations, or other key factors, that can give insight into why farmers are planting less---- factors that could influence design of critical assistance.

Diverse reasons were given for farmers’ decline in seed use (Table 9). These largely focused on constraints related to illness, lack of money to buy seed and theft (the latter especially a constraint in Kailahun). Note that ‘no seed available’ was an insignificant factor . (Hence, giving free seed might not solve a seed security constraint especially when illness and lack of labor have caused the declines). Reasons cited in Kailahun, where stresses were initially greatest, suggest the same trends. Those sowing less last season (during Ebola outbreak 2014) and for next season (starting April 2015) will do so largely because of illness, theft and money constraints.

Table 9. Main reasons farmers gave for sowing a LOWER quantity than normal for that crop - all three Districts combined.

Reason for sowing LESS	Current Season (n=203)*	Next Season (n= 160)*
No money to buy seed	16 %	25%
No seed available (mkt. or neighbors)	2 %	2 %
Poor quality seed or disliked variety	0 %	1%
Illness	29 %	22 %
Insufficient Labour	6 %	10 %
Insecurity / Theft (Kailahun only)	17 %	19 %

* Number of specific crop X farmer instances; farmers detailed up to three crops each season)

To further understand farmers’ planting decisions, the assessment pursued a positive note: why those who planted (will plant) more in 2014 and 2015 do so. Major reasons have to do with availability of seed due to the good harvest, greater access to land (*an issue that needs to be investigated further*) and a desire to bounce back and intensify production after the 2014 dip. Note that 10-15% of observations center on ‘planting more’.

Table 10. Main reasons farmers gave for sowing a HIGHER quantity than normal for that crop - all three Districts combined

Reason for sowing MORE	Current Season (n=93)*	Next Season (n= 153)*
More seed available (Good harvest)	12 %	21 %
More seed available (Free seed)	5 %	3 %
More money to buy seed (or credit)	8 %	6 %
Good/increased labor	3 %	3 %
More land / more fertile land	29 %	19 %
Shifting priorities (to crop, or ag in general)	33 %	41 %

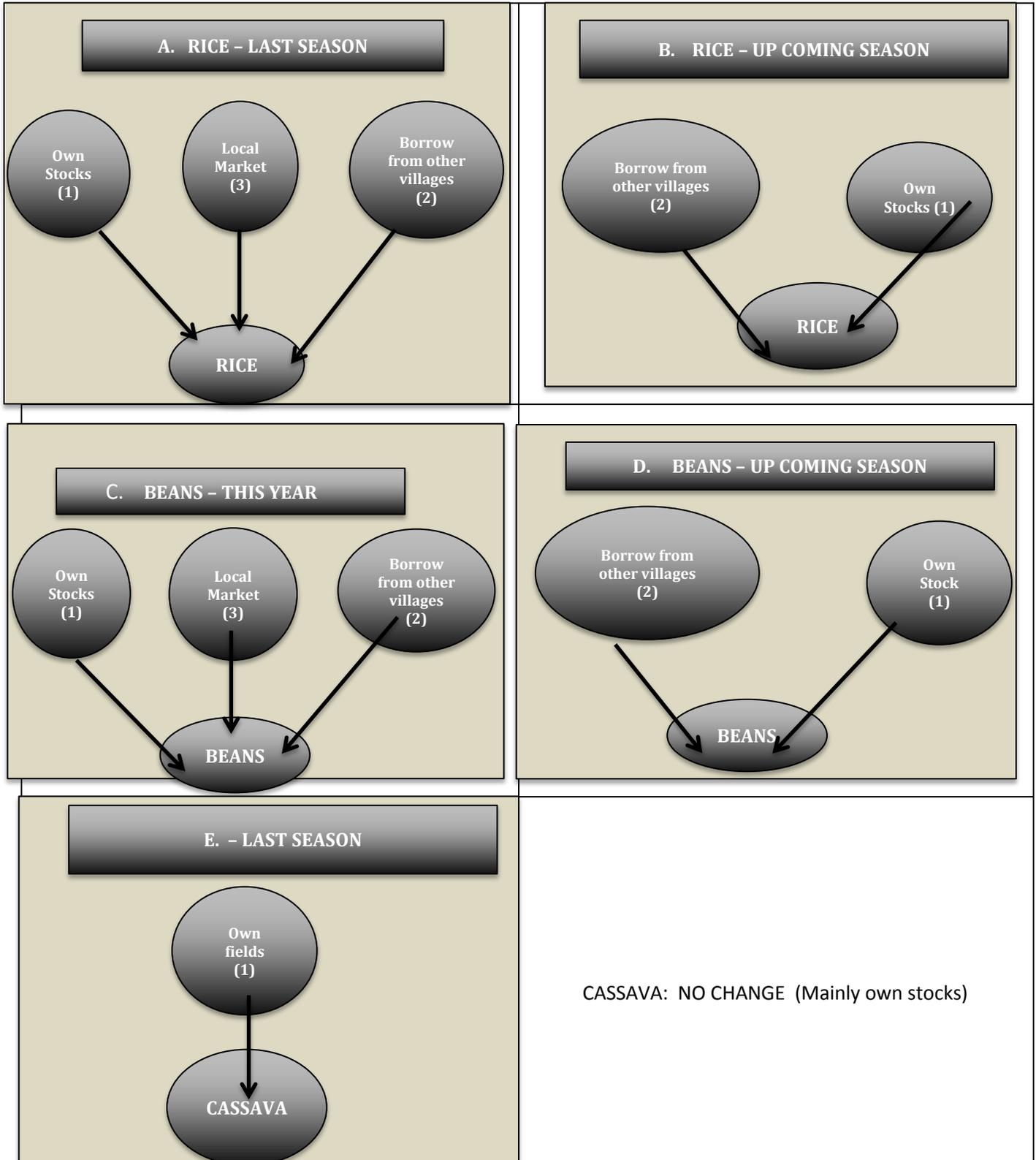
. * Number of specific crop X farmer instances; farmers detailed up to three crops each season).

SEED SPECIFIC ISSUES: SEED SOURCING STRATEGIES

Farmers’ seed security strategy—and what they perceive as their options to accessing the seed they need—were explored quite concretely through community mapping of seed channels, crop by crop. Seed sourcing strategy was mapped in groups (eliminating individual bias) with actual sources used the last season compared with those project for use for the next.

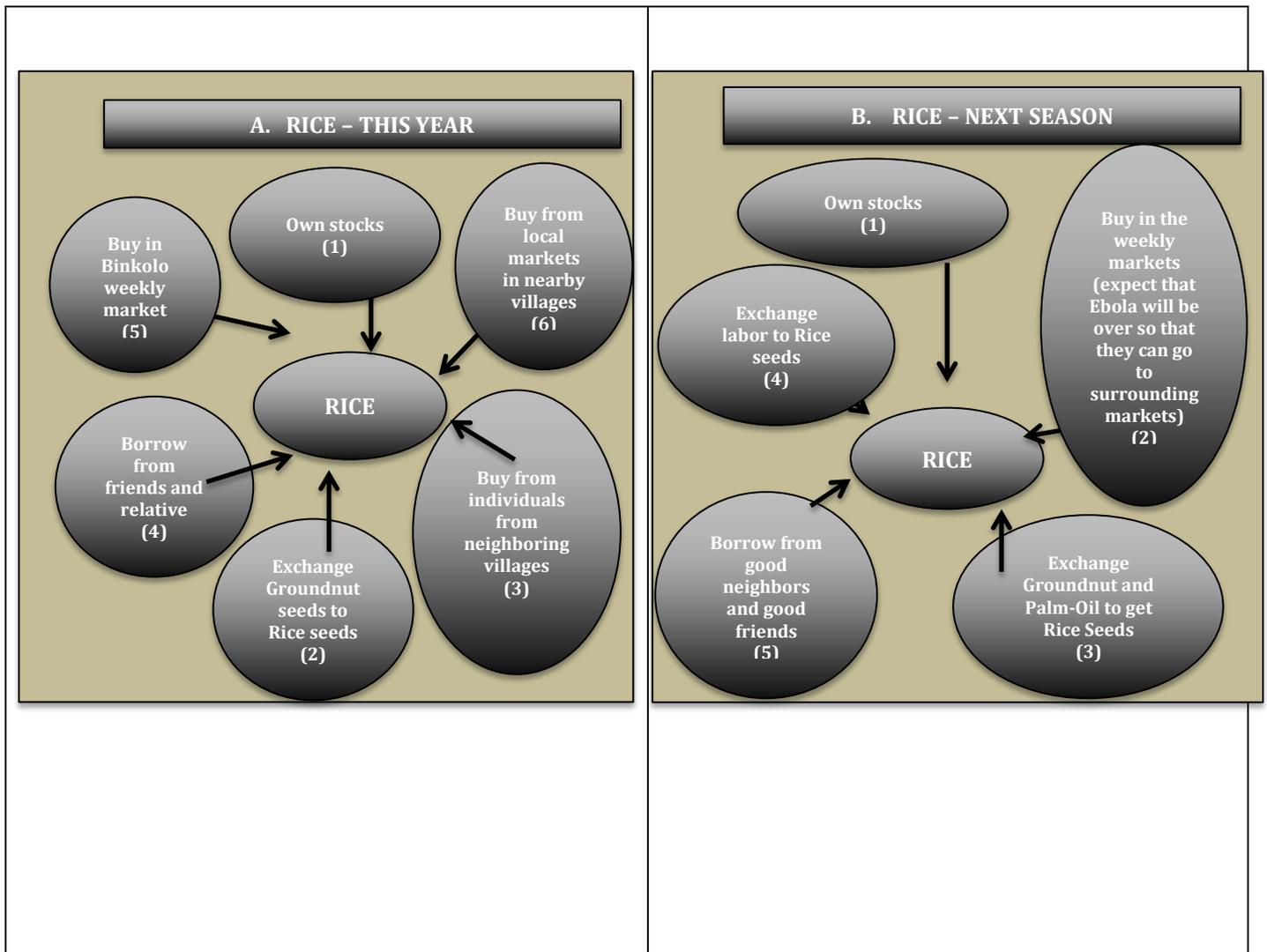
For Kailahun, figure 2 A-E reports the results of women’s group mapping, as women’s roles as seed procurers and managers are well known. The mapping shows that cassava (2E) has been relatively unscathed in terms of planting material. It has remained in the ground and has not required special management. This stability is important as cassava is a major crop, and a good source of calories. For rice (2C and 2 D), three sources are particularly used, especially seed saved from own stocks or seed borrowed from neighbors. Borrowing is well-documented in the Sierra Leone seed literature and attests to usual social network sharing when it comes to seed acquisition. Last season, farmers also procured some rice seed from local markets, but this mapping suggests they are not counting on this source for the next season as a central source (possibly for dual reasons of money constraints and reduced market functioning). The pattern of seed sourced for beans has been described as similar: in normal times, three central sources but with projected reduced market use for the upcoming April/May sowing. The women’s did not factor in free aid for the upcoming season (in contrast to the men’s community mapping in Kailahun, *(field notes , November 24, 2014)*).

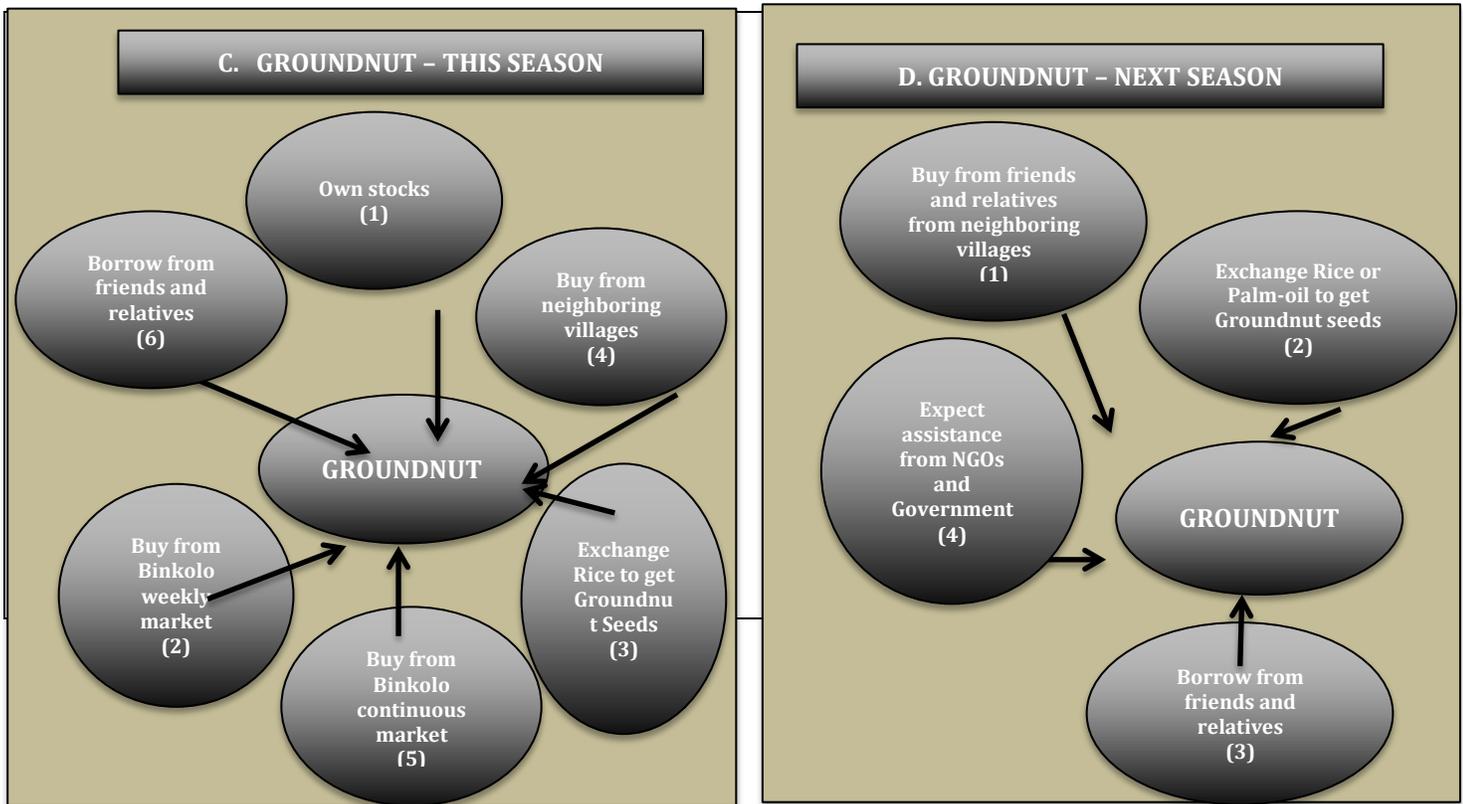
Figures 2A-E. Kailahun: Women's group mapping of seed sourcing strategy, three major crops, for 2014 (last season/this year) and 2015 (next season)



As a second example, the community mapping of seed source strategy is also presented for Bombali, via discussions with a men's focus group (November 28, 2014). The focus was on the major crops which are short-cycle and often sold on markets for quick cash (.e.g to pay medical bills or school fees.) For both groundnuts and rice, there several major sources of seed with own stocks and social networks (friends, relatives, neighbors) being key. The mapping also shows a complex set of relationships or transactions people sense they can count on: for instance, exchanging rice seed and groundnut, exchanging palm oil for seed of both crops. Community discussions did indicate use of important coping mechanisms: exchanging labor for seed and much higher levels of borrowing. Only for groundnut was the group projecting aid from the government (and as the 4th most important source). Groundnut seed was described as difficult to retain even in normal times, due to its low multiplication rate as its high value as a cash earner.

Figures 3A-D. Bombali: Men's group mapping of seed sourcing strategy, three major crops, for 2014 (last season/this year) and 2015 (next season)





SEED SPECIFIC ISSUES: STORAGE LOSSES

Finally, to check further on possible seed security stresses, issues of seed storage were explored. None of the five community focus groups highlighted loss of seed or grain in storage as a pressing problem. In contrast, the quantitative data for the household interviews showed routine losses for major crops hovering around 10%. Some 193 farmers in total (71% of the sample) recorded experiencing some seed storage losses. Select farmers may have detailed losses for more than one crop, hence the higher sample size. Rice and groundnut were among those noted with the highest storage losses, among priority crops. Storage loss might be considered something as a 'given'. It may be an important developmental area to address chronic stress, rather than figuring among the emergency needs.

Table 11. Number of farmers noting storage losses for seed, prior to sowing for the current season, along with mean losses in storage.

Crop	N with storage losses	Average loss in storage (%)
Rice	135	9.2 %
Groundnut	84	9.9 %
Cassava	5	13.0 %
Pepper	6	30.4 %
Sweet potato	3	25.7 %
ALL CROPS	239	10.8 %

In terms of crop profiles, note that three crops here had a small sample size, and may have only been recorded when farmers noted particularly large losses. Also planting material for cassava and sweet potato may not normally be stored at home and so no clear record of storage loss.

These figures are relatively modest (esp when compared with losses recorded in many other countries). However, alleviating any loss could bring gains in the short as well as long term.

SUMMARY AND STEPS FORWARD

This rapid Seed System Security Assessment, conducted in three sites late November/early Dec 2014 has led to the following conclusions:

- a. Harvests have generally been good --except in areas hit by Ebola *during the critical land preparation for sowing periods*.
- b. Market days are being held in local areas serving immediate communities (making available freshly harvested products which could be used for potential seed.) Markets constraints are noted between and among regions although supplies are still coming from major centers such as from Freetown.
- c. Sowing rates of major crops dipped only in the first-affected Ebola area. Farmers generally project **rises** in sowing rates for next season—especially in hardest hit region.
- d. For the subset who may be sowing less (linked to vulnerability) farmers cite illness, lack of money and theft as the driving factor linked to seed use decline. Almost NO responses were linked to seed unavailability.
- e. Farmers expect to be borrowing and lending seed at high levels for the next season. However, in no focus group interview did communities suggest that social networking was disrupted.

- f. Prices for goods being brought in from 'elsewhere' are reported as somewhat higher due higher transport and fuel costs associated with the movement restrictions. It is not clear if local goods are being sold at higher margins.
- g. Storage assessments suggest routine losses of about 10%, especially with rice and groundnut. These are not dramatic losses but suggest an area for development improvement.

All in all, the seed security situation seems a stable one. Harvests were good, local nearby areas could provide seed in epicenter regions, markets days are being held, and social networks seemed to be functioning (as indicated by communities interviewed).

For those hardest hit, illness, theft and lack of money drive their reduced seed security status. Assistance in securing general daily needs (e.g. cash or vouchers for food, hiring labor) might be appropriate.

During the period of the assessment, farmers themselves remarked: "We do not need seed tomorrow. There is lots of time to prepare"

A follow-up SSSA will be conducted closer to planting time, in the period February- April 2015. **At this point, there is no evidence that significant urgent seed security interventions need to take place.**