

Farmer led multiplication of rosette resistant groundnut varieties

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Abstract

Access to improved and appropriate technologies crucial for increased crop productivity has remained a major production constraint, especially for resource poor farmers. Farmer led verification and multiplication of improved crop varieties is one sure way to provide poor farmers with access to improved varieties, practices, knowledge and information required for increased crop productivity. The project on farmer led multiplication of rosette resistant groundnut varieties focused on involving the target group in most activities to ensure their participation and ownership of the process for long-term sustainability and benefit. The approach emphasizes participation of key stakeholders in planning, implementation, monitoring and evaluation of activities. The groups participate in preparation of seed distribution plans and set regulations to ensure seed is not lost thus breaking the distribution chain. Local leadership structures are put in place at group level (production committees - PCs) and at parish level (Parish Development Committees - PDCs) with defined roles to ensure planned activities are completed. Distribution and repayment of the loaned seed is public to ensure accountability. Seed is given to individuals in groups as loan seed "to be repaid with seed interest" so that it multiplies until all target households access it. Groups provide peer pressure to ensure seed is repaid. The PDCs and PCs trained on seed production and reinforced with simple production guides, then train other beneficiaries. Adoption is promoted through end of season evaluations, joint review meetings and field monitoring with key stakeholders for progressive problem identification and solving. Training and direct participation has enabled farmer-led multiplication and distribution process to succeed dramatically with minimum external supervision. In two years 2,210 beneficiaries from 160 groups received seed and training. In 2004 seed will be extend to new groups.

Key words: *Arachis hypogea*, seed distribution, rosette disease, Farmer led, multiplication

Introduction

The farmer led multiplication of rosette resistant groundnuts varieties for Eastern Uganda is a three-year project funded by DFID Crop Protection Programme managed by Natural Resources International (NRI) Ltd and implemented by AT Uganda Ltd. The Project was a result of a call for proposals for promotional projects to promote or apply (disseminate) research outputs of NRI crop protection program. The project operates in 5 districts of Eastern Uganda namely Kumi, Pallisa, Tororo, Mbale and Sironko. The project began on 1st February 2002 and will end on 31st March 2005.

The project area falls in the montane (Mbale and Sironko) and Teso farming systems characterized by crop – livestock mixture. The dominant annual food crops include beans, Groundnuts, finger millet, cassava, sorghum and maize. However, Mbale and Sironko differ from the rest of the region in that in addition to the food crops mentioned above bananas are also grown for food and income. Cotton is a common industrial crop in the Teso systems, Sironko and lowlands of Mbale, while Arabica coffee (*Coffea carefera*) is the main commercial crop grown in the medium and high altitude areas of Mbale where it is intercropped with bananas (*Musa spp*).

The baseline survey for another project in the same project area identified the need to address groundnut rosette disease as a major constraint to groundnuts production, a

major crop grown for food and income; thus the basis for focus on groundnuts as a crop.

Considering that groundnut seed rate is high and the risk of crop failure from rosette disease is high, lack of seed is a major reason why poor households don't grow Groundnuts, even though groundnuts production is very profitable. Eastern Uganda used to produce large quantities, however, decline in production is explained by the lack of cash to buy chemicals to control rosette. Therefore rosette control through disease and vector resistance is more economical, sustainable, and appropriate, especially for resource poor farmers.

In view of this situation this project promotes farmer-led multiplication of rosette resistant Groundnuts varieties for poor households under the supervision of local authorities. It will increase Groundnuts production and ensure that poor people have access to new varieties through delivery of the following outputs:

1. Extension staff, local authorities and farmers trained in Groundnuts production, multiplication and storage;
2. Foundation seed for new rosette resistant varieties obtained and multiplied by farmers group members;
3. Multipliers return double the amount of planting materials received for redistribution and further multiplication;
4. The process of collection, redistribution and monitoring of multiplied seed effectively handed over to local leadership for management.

It is dissemination and not a research project. Lessons from previous projects indicate that farmer led multiplication of improved varieties is one way to ensure that poor but able farmers access and utilize improved varieties, practices and knowledge required for increased productivity

Methodology

Information contained in this paper is generated from AT Uganda Ltd. documents especially data and information collected during implementation of earlier projects. Documents reviewed include baseline studies, project memorandum, progress reports, end of season evaluation reports, reports of joint review meetings, and impact reports for AT Uganda Livelihood Initiatives For Eastern Uganda (LIFE) project.

The project operates in the five districts of Kumi, Pallisa, Tororo, Mbale and Sironko in Eastern Uganda, covering in total sixteen (16) sub-counties. The sub-counties include: Nabuyoga, Nagongera, Mazimasa, and Kachonga in Tororo district; Lyama, Kadama, Kasodo, Butebo in Pallisa district; Kidongole, Malera, Nyero and Ngora in Kumi district; Bukhalu, Butandiga in Sironko district and Busiu and Butiru in Mbale district. In each sub-county the project operates in two parishes and with ten farmer groups with a total membership of 4317 farmers in the 160 groups. These groups earlier participated in seed multiplication under LFE project.

The model for multiplication of seed used is a replication with modifications of a project approach already practiced with other crops in an earlier project implemented by AT Uganda Ltd. (LIFE Project) with the same stakeholders. The approach emphasizes participation of key stakeholders in this case beneficiary farmer groups, Production Committees (PCs), Parish Development Committees (PDCs), Extension Staff who work as Farmer Participatory Research Assistants (FPRAs) and sub-county local government authorities in planning, implementation, monitoring and evaluating project activities.

The Process Involves;

- a) Training of FPRAs as trainers on groundnuts production
- b) Setting up of local leadership structures at group level i.e. PCs to handle seed multiplication issues and another structure at parish level PDCs to coordinate and monitor the groups. Each group is represented on the PDC, which also has local government representatives from the village and parish level, especially local councilors and the parish chief.
- c) Participatory identification and assignment of roles to the local leadership i.e. PC and PDCs to ensure seed given out is safe guarded and repaid for further multiplication the roles include among others training of beneficiaries on groundnuts production, farmer-led extension, monitoring management of crops in the field, facilitating identification of beneficiaries, distribution and recovery of seed for redistribution, and record keeping.

- d) Delivery of seed by the project to individuals in groups is based on distribution plans i.e. plan of how multiplication should take place and the order in which new materials should filter through the group members to ensure that all have access within the shortest possible time. The plan is drawn up by groups assisted by PCs and PDCs considering the able poor and women as a priority to receive seed first.
- e) Acknowledgement of receipt of seed and multiplication terms, especially on quantities to be paid back, is signed by all beneficiaries, and in the interest of accountability, transparency, and easy follow up, witnessed by PDCs at group/public meetings.
- f) Local leaders keep a register of all receipts.
- g) Beneficiaries are responsible for custody and storage of seed since distribution is done soon after harvest, and provide land and labor to produce the crop.

Results

For effective, sustainable dissemination of improved varieties to poor households interventions in training, multiplication, distribution and handover of management to the community were undertaken.

Challenges

Just like in any undertaking, challenges were encountered and included:

1. Drought affected yields in some cases resulting in reduction of seed amounts repaid and slowing the coverage.
2. Other pests and diseases were observed especially the leaf miner. Requiring control by resource poor farmers posed a challenge.
3. Mismanagement of the multiplication and distribution process by some FPRAs and local leaders leading to distribution of seed to people outside of group influence resulting in non repayment and missing records was observed in some cases.
4. Some farmers failed to plant seed received and they missed out a season due to other problems, thus slowing the coverage/ spread of seed.
5. Some farmers eating or selling off all seed before planting especially the really poor group members.
6. Poor handling of seed by a few individuals, resulting in low viability and thus low production by next beneficiary
7. Sustaining commitment of non-group members of the PDC since the service is voluntary
8. Enforcing byelaws incase of default especially since most group members come from same village, may not be taken seriously, and there are social pressures involved.
9. Sustaining participatory activities such as joint review meetings and monitoring
10. Poor seed quality especially mixing of varieties with local ones. Challenges encountered were participatorily discussed and addressed during review meetings and field monitoring and informed decisions taken regarding appropriate solutions.

Table 1. Outcome of activities conducted

No.	Activity	2002	2003	2004	Comments.
1.	No of sub counties covered	16	17	17	One sub county was split into two in the second year and nine groups fell in the new sub county.
2.	No of FPRA trained on groundnut seed production.	16	31	0	Locally identified were trained as field assistants to support the FPRA. The collaborating researcher conducted all the trainings.
3.	No of project staff trained on groundnut seed production.	4	4	0	These are staff involved in supervising the project activities in the field.
4.	No of PCs formed and trained on groundnut seed production.	160	0	0	A committee was formed in each group comprising of at least 3 members to support seed production activities at group level. 480 farmers were trained as PC members.
5	No of PDCs formed and trained on groundnut seed production.	32	0	0	Each benefiting parish set up a committee of at least 10 members, with each benefiting group having a representative on the committee. The rest of the members being LCs and the parish chief. 78 leaders excluding PCs were trained. These committees coordinate the parish activities and help enforce multiplication by laws.
6	No of individual beneficiaries trained on groundnut seed production.	800	2210	4210	These figures are running totals. All individuals receiving seed for multiplication had to be trained before getting the seed. Refresher training were also conducted for all each season to promote adoption, and were done by the PCs supervised by FPRAs.
7	No of groundnut production manuals given to FPRAs and other trainers.	50	0	0	The NRI CPP supplied the manuals. Copies were also given to District Agricultural Officers of the participating districts.
8	No of simple groundnut seed production guides produced and distributed to farmers.	0	4000	0	All beneficiary groups received copies for their members.
9	No of trainings conducted on seed production.	32	176	176	In the first year trainings were at sub county level. However, in the second year it was decentralized to group level to increase group participation and attendance. Refresher training of the trainers i.e. PCs and PDCs preceded each training at group level.
10	No of varieties given out for multiplication.	2	3	3	These include Serenut 2 and 3 in the first year and Serenut 4 was introduced in the second and third years.
11	No of bags of seed in shell bought and given to farmers.	269	286	194	Each bag weighed at least 40 kilograms.
	Serenut 2				+ Groups also bought additional 89 bags using matching grant funds.
	Serenut 3	264	50+	0	* Seed supplied was mixed so much of it was flushed out.
	Serenut 4	8	156*	95	
		0	36	99	
12	Hectares multiplied using purchased seed.	82.50	35.50	69.00	41 hectares lost as result of wrong seed. However, up to 187.50 were multiplied. Farmers planted additional 27 hectares using seed bought using matching grant funds.
	Serenut 2	80.00	15.00	0.00	
	Serenut 3	2.50	6.00	29.00	
	Serenut 4	0.00	14.50	40.00	
13	Hectares multiplied using seed returned by beneficiaries and redistributed to other farmers.	0.00	160	377	Each farmer who received seed was to return twice the amount for distribution to others. 537 hectares were planted however some records were missing.
	Serenut 2				
	Serenut 3				
	Serenut 4	0.00	160	341	
		0.00	0.00	10.00	
		0.00	0.00	26.00	

14	Metric tons of extra seed available and sold by beneficiaries. Serenut 2 Serenut 3 Serenut 4	-	39.25	-	-	Records not available. Seed sold could plant 455 hectares of Serenut 2. There was also a lot of informal distribution to non-participating members of the community, which could not be quantified.
15	No of joint review meetings held.	0	32	32		Two meetings were held in each sub county each season, attended by all groups to jointly assess progress, identify problems and solve them in a participatory manner.
16	No of joint field monitoring visits made.	16	16	16		By a team comprising of PDCs, PCs and sometimes project staff. Each group was visited at least once a season to assess adoption of practices, crop performance and instill the culture of collective responsibility and monitoring.
17.	No of end of season evaluations conducted with beneficiaries.	16	16	-		One held each season in each sub county to promote appreciation of and adoption of technologies.
18	Other trainings offered to facilitate the multiplication process. - Record keeping. - Collective marketing. - Value addition or processing of peanut butter.					All 160 groups received the trainings -For PDCs and PCs. -All group members and marketing committees set up to help sell extra seed produced more profitably. -45 groups, 2 individuals and 8 FPRAs acquired manual grinders in the second year to diversify marketing opportunities for groundnuts.
19	Other achievements. - Some sub counties and programmes have adopted the multiplication methodology. -Some beneficiaries have adopted the method to lend out seed to friends, neighbors, and relatives.					Used in Ngora, Mazimasa and Kachonga sub counties.

Discussion

Training

Training was important to ensure that beneficiaries received knowledge and skills for increased productivity and seed quality. The approach used ensured that most farmers who received seed got trained and were reached, and that the language used was toned down to suit their own level of understanding. This was possible through use of fellow farmers that is the PCs as trainers equipped with simple illustrated guides. The practical refresher trainings helped remind them of recommended practices. End of season evaluation meetings further helped offer the opportunity to learn more and promoted adoption of practices, as farmers were able to hear and learn from experiences of fellow farmers. It also enabled them to assess and appreciate the attributes of the varieties and importance of other practices.

The high level of adoption of crop husbandry practices seen during field visits indicated effectiveness of the training and the approaches used.

Multiplication

Increase of seed quantities for redistribution to all targeted beneficiaries in a short period, required whoever received to return more than the amount initially received. The return rate of two was definitely easy to meet and encouraged repayment by farmers and thus expansion of seed quantities evidenced by the increased acreage from repaid seed and number of beneficiaries accessing seed and quantities sold. Clear repayment terms and procedures developed in a participatory manner and enforced, and group peer pressure arising from community ownership of the seed also did instill the repayment culture in beneficiaries and gave control to the community.

Joint monitoring of crops in the field helped remind beneficiaries of their obligation and helped in timely identification of problems which depending on the nature

were either solved immediately or discussed later with other beneficiaries at the joint review meetings resulting in participatory problem solving. It also helped others take precautionary corrective action as they learnt from each other, and also helped groups refine their by laws based on challenges encountered and lessons learnt from other groups.

However there were also cases of failure to repay full amounts or partial repayments, due to poor yields resulting from mismanagement of crops, extreme weather, or failure to plant due to social problems such as death, sickness, and strained domestic relations. All these combined to reduce the expected returns and thus slightly affected the quantity available for multiplication. The approach adopted helped ensure whoever received seed repaid the expected amount, and also ensured that experiences or lessons learnt informed the process resulting in continuous refining of procedures, hence the high repayment rate.

Distribution

As beneficiaries paid back seed there were quantities of seed to pass on to other members. With the process of distribution of seed to the beneficiaries already streamlined using distribution plans, the identified beneficiaries were easily served. The process was further helped by the use of the seed multiplication by laws, group peer pressure as each looked to the group as the only opportunity and source to access the seed, PC and PDC participation in overseeing of the exercise and record keeping. Thus by the end of the second year nearly all members from participating groups had accessed seed, with some groups already passing on extra seed to farmers outside the groups. The procedure ensured that seed actually changed hands and target beneficiaries were served.

Handover

Putting in place of the PDCs and PCs helped set up structures to manage the multiplication process. Training in the areas of responsibility and seeing them implement with some supervision and lesson learning helped build their capacity. Training and facilitation in areas such as seed production, record keeping, field monitoring and review meetings for participatory problem identification and problem solving, was crucial and did help achieve the purpose in the transition period and is hoped will continue to work later. Incorporation of group representatives on the PDCs also ensured continuity in the event of non-group local government members of PDC losing commitment, as was case in some cases. The participation of the committees in the critical areas of the multiplication process implies a handover, which is only awaiting the final withdrawal of the project.

Challenges

Most challenges were addressed as they arose and were inbuilt in planned activities and covered in the following broad action areas.

1. Streamlining distribution procedures and doing it in public.
2. Seed quality issues addressed through continuous training.
3. Repayment of seed fostered through censoring of beneficiaries, field monitoring and revision and enforcement of bylaws.
4. Ensuring that PDCs benefit from planting materials to motivate them and involving of group members on the PDCs as the driving force of the committee since they have an interest.

Conclusion

For effective sustainable dissemination of improved varieties and practices to poor households, interventions should foster and address the critical factors of community ownerships and control of processes. This can be achieved through participation of the key stakeholders through processes and structures identified by them, for collective responsibility. Any process should be kept as simple as possible. Participation of key stakeholders is essential to ensure capacity building, local ownership, control and better understanding of the project and thus commitment to it is sustainability.