

Orange-fleshed sweetpotato as a disaster mitigation crop in war- torn Northern Uganda

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Abstract. In the war-torn northern Uganda, the regional potato and sweetpotato Improvement Network for East and Central Africa (PRAPACE), the International Potato Centre (CIP) and the National Agricultural Research Organization (NARO) worked with the James Arwata Foundation (JAF), a local NGO initiated in 2002, and other partners to mitigate war-related famine that is threatening about 53,000 internally displaced households. For this noble collaborative effort, orange-fleshed sweetpotato varieties Kakamega and Ejumula were used to provide the much-needed vitamin A and bolster food security in the region. Sweetpotato proved to be an effective famine mitigating crop in war- torn areas and the intervention supplied about 60 tons of food (roots) to internally displaced people living in camps in Apac, Lira and Gulu districts. Participating local farmers earned over US\$12,000 from sale of vines within a short period in 2002. This paper therefore narrates experiences with people in war- torn northern Uganda, and analyses the potential of sweetpotato to mitigate disasters.

Introduction

Northern Uganda has been a central stage of insurgency for almost two decades now; a calamity that has left over one million people displaced and living in protected camps. Due to security concerns internally displaced people (IDP) cannot attend to their farms except for a few hours each day, when there is

assured security. This restricted opportunity for the IDP to work and the displacement itself has resulted in serious food and income shortages. Government in collaboration with other relief agencies has responded by providing food relief directly to the affected families. Most often, the food supplies are inadequate in meeting daily dietary requirements and some times they are cut off due to lack of safe passage to camps because of sporadic outbreaks of fighting. To cope with the food scarcity situations, people particularly women, have always risked their lives and sneaked out of the camps to work in their fields.

Sweetpotato is an established part of the diet of rural people at risk (Tanganik *et al.*, 1998) of Vitamin A deficiency, particularly children. It is grown in areas where other sources of vitamin A, Such as oil palm and carrots are not common. Sweetpotato also plays a key role for households disrupted by HIV/AIDS and other crises (Andrade and Ricardo, 2002; Andrade and Ricardo, 2003). In northern Uganda, sweetpotato has been preferred because, among others, farmers know that it is hardy enough to thrive under rugged conditions easy to establish, requires no or minimum care and produces sufficient quantities of food for the household in a short time of about 3-4 months. Farmers have also realized that unlike cassava sweetpotato is not easily looted by the roaming hungry rebels. Introducing orange-fleshed sweetpotato varieties provided an extra

opportunity of fighting vitamin A related malnutrition among the war-affected persons in Northern Uganda (Kapinga *et al.*, 2003). This paper therefore analyses the potentials and opportunities of sweetpotato, particularly orange-fleshed types in mitigating famine and malnutrition rife in war affected communities of northern Uganda. It narrates experiences of using orange-fleshed sweetpotatoes to feed war-affected people in Northern Uganda.

About James Arwata Foundation (JAF). Initiated in early 2002, JAF is a community-based organization that aims at transforming human mind for improving socio-economic living conditions of the marginalized groups to avert feelings of apathy. Acting as a civil society organization, JAF gives light direction and links marginalized groups to various innovations or appropriate technologies, markets, and other service delivering national and international organizations. It has worked for marginalized and resource poor farmers in the war-torn districts of Apac, Lira, Gulu, and Pader. JAF was initiated with the goal of improving food security, nutrition and income of the community in war-torn areas.

Approach

JAF on its own has been able to mobilise and sensitize different farmer groups on the multiplication, production and consumption of orange-fleshed sweetpotato. It has sourced and distributed planting materials to people taking into account of the security situations. For example, at the peak of insecurity JAF devised a method of dropping planting materials on strategic locations for farmers to access when sneaking back to their fields. Additionally, through establishing viable linkages (Tanganik *et al.*, 1998) to other organisations, JAF has been able to register early successes of using orange-fleshed sweetpotato as a disaster mitigant in northern Uganda. PRAPACE, CIP and NARO provided technical guidance and funds at different stages of the activities. The funds for purchase of the initial planting materials and

facilitation of training of JAF farmers and extensionists were provided by CIP and PRAPACE. CIP also provided additional funds to purchase a motorised sweetpotato chipper to process sweetpotatoes in the event of surplus production. NARO's sweetpotato program mobilised initial planting material among the commercial planting material multipliers in central Uganda. NARO also conducted trainings for JAF lead farmers and extensionists. At the grassroots JAF linked very well with the administration of respective districts and was able to utilise government extension personnel in some activities. Later on during distribution of the sweetpotato roots to the displaced people, JAF forged more linkages with stakeholders concerned with relief food distribution to people in the camps. Among the key linkages were those made to the district administration, Red Cross-Uganda, UNICEF and World Vision International. These provided transport for the mobilised sweetpotato roots to the people in the camps as well as distributing roots to the affected people.

Multiplication and distribution of sweetpotatoes in the northern Uganda. JAF's involvement in promoting OFSP started in June 2002 with mobilization and sensitization of farmer groups in Apac on importance of orange-fleshed sweetpotato varieties. This was at time when this region was relatively peaceful. This fed into follow up planning meetings with farmer groups that led into forming farmer groups for multiplication, and eventually land preparation. By the second week of July, the first batch of planting material was delivered from Central Uganda. This was followed subsequently by the second and third batch deliveries. A total of 355 bags with estimated 851400 vine cuttings sufficient to plant 28.4 hectares was delivered (Table 1). Using additional funds from CIP, more 100 bags of vines were also delivered and distributed in Apac and Lira during 2003. All the planting material delivered in 2002 was of the variety SPK004 (Kakamega), while in 2003 it was only the variety Ejumula. SPK 004 is an

Table 1: Sources and estimates of planting material acquired by James Arwata Foundation in Northern Uganda, 2002.

Year	Source	Variety	No. of bags	Estimated No. of cuttings	Estimated area (ha)
2002	Luwero Farmers	SPK 004	305	732,600	24.42
	Kampala farmers	SPK 004	50	118,800	3.96
2003	Luwero Farmers	Ejumula	100	240,000	8.0
Totals			455	1,091,400	36.4

introduced orange-fleshed sweetpotato variety from Kenya (Mwanga *et al.*, 2004) that has proven to be high yielding, with high dry matter content, adaptable, and found acceptable in other parts of Uganda. Ejumula on other hand is a local variety that has been highly accepted across Uganda. It is deeper orange than SPK 004, has stable yields and with high dry matter levels (Mwanga *et al.*, 2004).

The first three batches of planting materials largely of SPK were distributed to three farmer groups, two in Lolo Sub County and one in Inomo Sub County all in Apac district. These groups served the dual purpose of multiplying vines and producing the first crop of sweetpotato that was harvested in December 2002. The batch that was delivered in 2003, was largely Ejumula and was spread to more groups. Apart from Lolo and Inomo in Apac, Ejumula was distributed to two more groups in Aduku and Bala sub counties in Apac district and one group in Lira district.

Scaling up of planting material deployment.

It is important to note that all the starter planting material purchased from central Uganda (Table 1) would not have met farmers' demand even if it were delivered as a single batch. A lot of farmers got interested and opened big fields after being mobilized and sensitized by JAF. This meant that the fields, which were planted using the very first batch of the material served as multiplication fields. As early as mid August vine cuttings were ready for distribution to other farmers within

and outside the initial groups. Table 2 shows the documented planting material that had been distributed to other farmers within and outside the initial target districts by JAF by March 2003. In the event that Apac and Lira districts became insecure during the last quarter of 2003, the distributions targeted the war-affected communities, including the war hot spots areas of Gulu and Pader districts. An estimated total of over 4.5 million vine cuttings covering an estimated total area of 151.5 ha have been distributed in the Northern region through JAF coordinated activities. The major beneficiaries have been Apac and Lira where the organization is largely based; a total of over 2.5 million vine cuttings have been distributed in the two districts. This is probably because the organization is based in the two districts, but probably also that the two districts were at the start of the multiplication and distribution activities were relatively peaceful. The activities were affected later when rebels infiltrated Apac and Lira districts. The second major beneficiary was Soroti district courtesy of the government NAADS program. JAF mobilized up to 640 bags of vines among its farmers and delivered then to Soroti. This consignment was estimated to have contained over 1.5 million cuttings and was estimated to have planted up to 51 hectares of sweetpotato fields. In total JAF farmers got Shs 3,840,000 (equivalent US\$ 1930) from sale of planting material.

Other districts like Pader and Gulu are war-hot spots and this probably accounts for the limited distribution of planting materials. This

shows, however, that there is great interest and demand in such areas, despite the difficulties farming communities are going through.

In general the expanded distribution of orange-fleshed sweetpotato planting material has enabled extensive coverage of the vines in the region more so in Apac and Lira districts. Table 3 shows some of the farmer groups that are known to have benefited from scaled up vine cuttings distribution activities. A minimum of 19 farmer groups has directly received planting material from JAF. However a lot more groups have benefited. For example, the number of NAADS groups in Soroti that finally received the planting material remained

unknown to JAF. But also there is a lot more planting material that has exchanged hands among farmers without getting to JAF's notice.

Orange-fleshed sweetpotato as a relief food in northern Uganda. Apart from acting as multiplication fields, the initial planted fields yielded a lot of sweetpotato roots, leaving a lot of surplus roots with the farmers. Fortunately, this was the same time insecurity in the region was at its peak and many people had been forced to live in protected camps. Displaced people had fled rebel insurgency in the various districts that included Lira itself, Apac and especially Pader district. Pader is

Table 2: Scale-up distribution of planting material in war affected areas of the Northern Uganda 2002/2003.

District	No. of bags	Estimates vine cuttings	Estimated area (ha)
Soroti	640	1,536,000	51.2
Gulu	150	360,000	12.0
Pader	50	120,000	4.0
Apac	620	1,488,000	49.6
Lira	434	1,041,600	34.7
Totals	1894	4,545,600	151.5

Table 3: Some of the farmer groups that have benefitted from the expanded distribution of planting materials received from Jamee Arwata Foundation (2002/2003).

District	Sub-county	Groups
Lira	Ogur Dokolo Kwera	Akakan, Agweng, Alyec Youth Amwoma, Iguli, Akolodong Apennyang, Agen farmers
Gulu	Bobo	Patek Youth, Adak Women group
Apac	Acaba Inomo Aduku Chegere Minakulu Bala	Ocolo, Apurubonyo, Acaba Youth tree planting group Ajok 'A', Ajok 'B' Ikweru, Adyeda women group Apoki Women Guild Assoc. Omoladyang, Abongwen Youth Afforestation
Soroti	Gweri	NAADS groupsSOCADIDO groups
Totals		>19 groups

one of the rebel hot spots and is neighbouring Lira district. JAF, in its noble mission of joining hands with policy makers, NGO's, research organizations and the rural poor, to bring hope to the hopeless, using funds provided by PRAPACE, donated an estimated 7 tones of orange-fleshed sweetpotato roots to displaced persons in Lira municipality in Lira district. It is estimated that at least 8021 displaced persons (about 1367 households) were fed by the donated sweetpotato. JAF linked to more other organization for a hand in achieving this noble cause. For example, the Lira district administration provided a vehicle that helped to transport sweetpotato fresh roots from three different sub-counties to the distribution centers. Uganda Red Cross volunteers handled the distribution to the affected people. The distribution exercised was overseen by the district administration, UNICEF. The media also witnessed the distribution of the sweetpotato and later helped to publicize the activities by JAF and indeed the orange-fleshed sweetpotato.

This supplemented the traditional cereals and beans that continued to be given out by World Food Program, and the artificial vitamin A tablets given by UNICEF.

The first distribution created demand from other organizations to extend the supplies to other camps in more affected areas of Gulu. In 2003, JAF in collaboration with World Vision International distributed about thirty tones of fresh roots to displaced peoples camps in Gulu.

Achievements

JAF's activities to disseminate orange-fleshed sweetpotato in the war-torn areas of northern Uganda present a number of achievements to JAF and its partners.

Expanded multiplication of orange-fleshed sweetpotato has increased food availability in households and yielded surpluses that have fed displaced people in the various camps (including disparate babies and women). Since its inception, JAF estimates to have distributed planting materials to over 120

groups (included women and youth groups) to all the war affected districts in Northern Uganda. Some of the groups are displaced people who carried planting material back to their villages as conditions improved. On the food relief side, JAF estimates to have distributed over 60 tones of orange-fleshed sweetpotato that is estimated to have fed over 300,000 affected persons (53,000 households) living in the camps in both Lira and Gulu districts for approximately two days each household (Red Cross Relief staff- personal communication)

Financial benefits have also accrued to farmers' and women's groups through the sales of vines and sweetpotato roots. In a period of about a year, participating farmers earned over US\$ 12,000 from sales of vines alone. These earnings are seen as incentives to farmers to sustain production and wider dissemination of orange fleshed sweetpotato in the north especially as the security situation improves. These farmers have become keener and for the first time in the region vines were maintained through the dry season.

These activities have thus contributed in restoring hope among the people. This is reflected in ambitions of Mr. Albino Ebwol, chairperson of Alidi farmers group, when he was asked by Uganda television of what he expected to gain with the sweetpotatoes. He hoped to buy a car and his fellow farmers would build decent permanent home buildings.

JAF has successfully involved and captured the interest of local opinion leaders into its activities on orange-fleshed sweetpotato. A number of officials from the district local councils have also become growers of OFSP.

JAF as an organization has won recognition and appreciation from the local leadership, which is critical for its future activities. For example a vote of appreciation to JAF was discussed and passed by the district council. The council is the local legislating and planning unit at the district. The appreciation recognized the uniqueness of the donated sweetpotato varieties that are

rich in vitamin A and would therefore fight malnutrition in addition to food security.

Lastly promotion of orange fleshed sweetpotato has presented JAF with valuable knowledge and experience in dealing with desperate people that live under continuous uncertainty.

Challenges

Future strategy. It is hoped that the security situation in some parts of the region will improve while other parts remain insecure. JAF will continue to work with farmers in the camps in areas whose security situation is envisaged to improve by availing clean planting material and establish multiplication gardens for the vines. These will be sources of more vines as people settle back into their homes. The multiplication will also be done with people in camps in areas still prone to insecurity to encourage them produce supplementary food using areas within the surroundings of the camps. This will also serve to conserve the vines for these affected families hoping for improvement in the security situations in their areas. Farmers in all the cases will be trained on good cultural practices of producing sweetpotatoes as well as post harvest handling aspects in events of over production. JAF also hopes to continue working with its partners to provide sweetpotato to displaced persons by buying of the surplus from the farmers in secure areas. It will also seek to widen the partnership to more organizations with the aim of getting further support to widen impact to reach all the affected people in the North.

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References

- Andrade M. I., Ricardio, J. and Gani, A. 2002. Combating Vitamin A deficiency in rural Mozambique with orange-fleshed sweetpotato: Results of a survey on nutritional status and two round provincial trials on the evaluation of 19 orange-fleshed sweetpotato across 21 different environments over 8 provinces in two seasons. INIA/SARRNET, Maputo, Mozambique. 66pp.
- Andrade, M. and Ricardio, J. 2003. Opportunity emerging from disaster: The role of orange-fleshed sweetpotato in reducing the risk of Vitamin A Deficiency in the flood-affected areas of Mozambique. In Second SARRNET scientific workshop; Programme, abstracts of papers and list of participants. 9th- 23rd May 2003, TAJ Pamodzi Hotel, Lusaka, Zambia.
- Kapinga, R., Andrade, M., Lemaga, B. and Crissman, C. 2003. Role of orange-fleshed sweetpotato in disaster mitigation: Experiences from East and Southern Africa. In: Thirteenth Symposium of the International Society for Tropical Root Crops (ISTRC). Programme, abstracts of papers, list of expected participants and exhibitors. 2003, AICC, Arusha, Tanzania. 27pp.
- Mwanga, R., Turyamureeba, G., Alajo, A., Kigozi, B., Carey, E.E., Niringiye, C., Kapinga, R., Zhang, D., Tumwegamire, S., Lugwana, E., Namakula, J., Abidin, P.E., Lemaga, B., Nsumba, J. and Odongo, B. 2004. Submission to the Variety Release Committee for the release of Sweetpotato Varieties. National Agriculture Research Organization (NARO). Un published.
- Tanganik M., Phezo, P., Ewell, P.T., Lutaladio, N.B. and Scott, G.J. The role of Potato and Sweetpotato in Disaster Relief: The Case of Rwandan Refugees in South Kivu, Democratic Republic of the Congo (ex-Zaire), 1994-96. 1999. Impact on a Changing World. Program Report 1997-1998. International Potato Center, pp. 365-369.