



Sweetpotato for Profit and Health Initiative (SPHI)
Sweetpotato Seed System and crop management Community of Practice (SSS-CoP)
Summary of online Discussion

TOPIC 19: Scaling up Triple S: Why, what and how should we do it for significant impact?

Lead discussant: Mihiretu Cherinet, International Potato Center (CIP) - Ethiopia

Introduction

Timely access to enough quantities of quality planting material is a key limiting factor in sweetpotato production in Sub-Saharan Africa. This is exacerbated by unpredictable changes in climatic conditions which makes it difficult to conserve planting material during the dry seasons. Triple S is one of the technologies that can help address this. Triple S involves *Storing* sweetpotato roots in *Sand* and letting them to *Sprout* when it is about to rain. Some stories about the benefits of Triple S are available on <http://www.rtb.cgiar.org/blog/2019/03/13/small-investment-big-results/> and <https://www.sweetpotatoknowledge.org/champion-farmer-household-contributes-scaling-use-triple-s-technology/>. Concerted efforts are needed in scaling up the technology to benefit more farmers. The 2019 SSS-CoP online discussions started with experience and knowledge sharing on Triple S with an aim of proposing ways through which the technology can benefit more farmers. Led by Mihiretu Cherinet, the discussion was held on April 8 – 23, 2019.

Why Triple S

Triple S which refers to ‘Storage in Sand and Sprouting’ provides planting material from storage roots in areas with a long dry season. In such areas, farmers often obtain sweetpotato planting material from roots which have been overlooked during harvest and sprout when it rains. However:

- a) The roots sprout only when it rains and planting material only becomes available some weeks afterwards
- b) The roots may sprout in distant fields, unprotected from grazing animals and thieves.

To solve these problems, researchers and farmers developed a system of conserving planting material whereby storage roots are stored in sand and then planted out and watered before the arrival of the rains. This way, they will have sprouted and produced large amounts of planting material in time for the arrival of the rains. The technology is among those currently being scaled up through the CGIAR Research Program on Roots, Tubers and Bananas (RTB) Scaling Fund.

Scaling Triple S

It was noted that successful scaling up of Triple S requires fully participation of both public and private sectors including political good will. There is need to understand current status in different countries and how factors such as sociocultural practices, economic benefits, policies and politics influence adoption. More impact implies more cooperating stakeholders including farmers, government institutions and private sector actors. It has been noted that shared approaches are increasingly useful and effective factors in building capacity for promoting innovation and shaping collaborations agendas particularly in Africa. Thus, soliciting for supportive policy frameworks, strategy for effective collaborations, implementation and lobbying for appropriate financing mechanisms would positively drive and enhance impact.

Reaching more farmers is not necessarily increased impact and scaling up or out involves wide range of stakeholders or impact levels and pathways including at farmer level. Others are potential small business enterprises selling vines and roots, formative research systems or academia groups generating and disseminating new knowledge, policy makers formulating appropriate institutional policies for adoption etc. Scaling out is bi-directional, that is vertical or horizontal scale out: It may involve early adopters such as farmers or stakeholders within the pilot communities influencing adoption to several adopters within the communities or beyond the initial communities or even in-country and/or to other countries.

The VISTA project in Mozambique has demonstrated the importance of involving government officials. The project sought support from the government particularly the extension workers to ensure successful scaling up of the Triple S technology. According to Eliah Munda, the project deliberately trained the extension workers to enable them to understand and appreciate the technology as a valuable means of ensuring availability of planting material. Local governments now appreciate the technology and are encouraging farmers to adopt it.

In Nigeria, farmers from several states were trained on Triple S method and on-farm demo plots established in 4 states under various projects. There are indications that small scale farmers in drier areas of Nigeria especially in Kano and Jigawa states (Sudan savannah with only 4 months of rainfall) will adopt the method considering the interest shown during introduction. Adoption of the technology is most likely if local materials such as earthen pots, bags and demarcated corners of building or other containers that are easily accessible are used as storage containers.

One of the challenges that may slow adoption of Triple S are mechanisms to ensure the selected roots are virus-free. However, selection of infected roots can be avoided through positive selection, a practice that has been implemented for many years by the potato team. At vegetative stage, the farmers are advised to peg health plants, from which they will harvest seed first before whole field harvesting. This is done in a situation where disease is prevalent. After some generation of cleaned up material through positive selection, they now go for negative selection. In negative selection, only diseased plants are pegged for removal at harvesting. Multipliers can be trained to designate plots on which they can practice negative selection for viral infections as it requires rouging out diseased plants. Multipliers can preserve the roots at 2 levels, first in the field for some more

months in ground if weevils are managed through spraying at vegetative stage, then de-top and re-hill completely and harvest for Triple S in such a way that sprouting is synchronized with production calendar. Felistus Chipungu shared that de-topping worked very well in Malawi. Harvesting was done in September instead of June/July. Roots had already started sprouting in September, hence one month was enough for multiplication outside storage and seed was ready by January. At NRCRI- Nigeria, roots obtained after cleaning up the screen house to start another circle of pre-basic seeds are mostly virus free. These roots can be sold to vine multipliers as starter material for Triple S.

It is possible to upgrade the concept of root-based planting material conservation and multiplication to fit in large scale vine multiplication. In North America, they store roots in large barns with controlled temperature and humidity during winter and bed the sprouted roots in spring. Although there are key environmental differences between North America and Africa, it is still possible to build a large-scale system that can work for Africa. However, this will only make economic sense if we are able to clearly justify the need of such system over the existing field-based vine conservation and multiplication system.

Conclusion

The key aim of Triple S is to increase access to quality planting material in dry areas. Beneficiaries need to see the relative advantage of the innovation. Triple S is not entirely new hence has a greater advantage for adoption due to similarity with existing farmer practices. However, the pace of adoption will be influenced by tangible results from the technology. Therefore, consideration should be made as we communicate the messages e.g. on when to sprout – does it give a comparative advantage over the existing one? Considering the negative effects of climate change on agriculture resulting into persistent hunger, malnutrition and poverty, most poor farmers in drought prone environments would adopt the approach because of simplicity, relevance, and expected food and nutrition benefits. A communication strategy that considers information needs of all stakeholders is needed. In addition, there is need to build and strengthen opportunities for developing value chains and mainstreaming Triple S messaging and coordination into the existing extension service and local media.

Summary on the respondents:

Duration	No. of contributions	No. of unique respondents	No. and type of institutions	Number of countries
8/4/2019 – 23/4/2019	9	9 (7 male and 2 female)	NARIs: 1 CIP: 9	7 (Ethiopia, Kenya, Malawi, Mozambique, Nigeria, Tanzania and Uganda)

Contributors

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