

10. Dissemination of legume and cereal certified seeds using the community seed approach

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Introduction

Crop research institutions in Nigeria (national and international) have developed many varieties of their mandate crops that are high yielding, disease and pest resistant, early maturing, and aimed at increasing the productivity, income, and livelihoods of resource-poor farmers. It is important that improved seeds of these varieties are disseminated to farmers at the right time and in the right quantity and quality. There are many channels for seed dissemination and this presentation will look at the community seed approach as a viable strategy.

Background information

There are three classes of seeds: breeder, foundation, and certified seeds (CS). It is important to stress that CS are the seeds that farmers use for crop production and are produced by the seed companies, ADPs, some NGOs, out-growers, and NPFS community seed growers. The seed subsector policy of the country stresses the importance of high quality seeds for crop production and provides that “the seed industry program would be invigorated and the community seed program promoted to ensure provision of adequate and good quality seeds to local farmers.”

The seed supply situation

Seeds are the most important and cheapest input in crop production as 50% gain in productivity is attributable to use of improved seeds and the balance is due to other inputs, such as fertilizer. The seed system can be either formal or informal. The formal system generally consists of public sector research institutions, seed companies, and organizations (National Agricultural Seed Council) responsible for seed certification and quality control. The CS used for commercial crop production are produced mainly by five seed companies: Premier Seeds Ltd, Alheri Seeds, Nagari Seeds (all in Zaria), Seed Project (Kano), and Savanna Seeds, Jos. Although there are a few emerging suppliers, these are the leaders in terms of infrastructure and branch network, and have been around for quite some time. It was estimated that about 62,250 t of CS of the major cereals and legumes would be required by 2010. The total production by these seed companies is less than 10% of this national requirement. Furthermore, their focus is mainly on hybrids and a few open-pollinated crops; other crops, such as cassava, and millet, are not in their production profile. The informal system consists of large numbers of farmers who produce both traditional and improved varieties and market their own production. A larger percentage of the smallholder farmers' seed requirements is met through the informal sector. It is therefore important to give due recognition to the informal sector and to use it as a vehicle for providing resource-poor farmers with quality seeds of improved varieties of crops at affordable prices.

Seed dissemination by these companies

Dissemination is the array of activities along the channel through which the processed seeds (CS) from the factory are supplied to the consumers. Channels of seed dissemination include: distributors who sell wholesale, stockists (retailers), agricultural organizations or programs and projects, and also through direct supply to farmers.

Different levels of discount are provided, depending on volume. It is important to realize that seeds are alive (they contain a dormant embryo) during the dissemination process and should be handled with a lot of care. In spite of these channels, it has been established that the seeds of these companies do not get to resource-poor farmers because the dealers who stock them are limited to State capitals and some LGAs. There is, therefore, a compelling need for a complementary dissemination strategy that will get the improved seeds as close as possible to the farm. This new dissemination system is the community seed strategy for farmer-to-farmer seed diffusion.

Farmer-to-farmer seed diffusion

IITA, IAR, and Kano State Agricultural and Rural Development Authority (KNARDA) jointly used this strategy in 1997 to promote new varieties of cowpea (IT90–277-2 and IT93K-452–1) and millet (SOSAT C88). About 8 kg of the cowpea varieties were given to each of the primary farmers selected to establish 0.4 ha of seed farm. The 300 kg of seeds produced by each of the primary farmers (foundation seeds step 1 = FS 1) were distributed/sold to 12 secondary farmers. Each secondary farmer in turn established 0.4 ha of seed farm (FS 2) and the 300 kg produced by each farmer gave a total of 3600 kg, enough to plant 144 × 0.4 ha of the commercial crop. The NSS, IITA, IAR, and the ADPs of Kaduna, Jigawa, and Kano States inspected the seed farms under the Strategic Seed Reserve project, sponsored by USAID. This dissemination strategy aimed to promote improved varieties of sorghum, groundnut, millet, and cowpea in these States. In 2004, there were 2042 primary farmers working directly with IITA and 30,000 secondary farmers who had collected CS of these crops from the primary farmers. This led to these participating states being saturated with these improved varieties, and increased productivity and production of these crops.

Seed dissemination using the farmer-to-farmer seed diffusion approach

It is a faster and cheaper means of seed dissemination than the conventional method. It hastens the adoption of new varieties, leading to increased productivity, enhancement of food security, and poverty reduction.

Cowpea seed dissemination in the FCT

Two improved varieties of cowpea (IT90K-277-2 and IT93K-452-1) were disseminated in the FCT through a collaborative program involving IITA, NSS, and FCT ADP under the Strategic Seed Reserve project of USAID. In 2003, twenty cowpea farmers were selected and trained in cowpea seed production and storage. Each farmer established 0.25 ha of IT93K-277-2 with 6 kg of FS I provided by IITA together with insecticide for insect control.

On average, each farmer produced 125 kg of FS 2, giving a total of 1250 kg of FS 2 from the 10 primary farmers. Seed fields were inspected by NSS. Seeds were distributed/sold to 50 secondary farmers in 2004 to produce CS for commercial crop production. Because of the success of this dissemination strategy, over 500 cowpea farmers in the FCT participated in the program in 2005.

Seed dissemination at NPFS sites

In 2005, the NPFS and IITA organized a training program on the integration of legumes into the farming system. Site managers and Apex chairmen from 13 states where cowpea were grown were trained from 5 to 7 September 2005 at IITA, Kano. Each trainee was given 25 kg of IT93k-452-1 to establish 1 ha of seed plot. The 800 kg from each plot (allowing for about 20% to be retained by the farmer) were distributed/disseminated to other farmers using the farmer-to-farmer strategy (the seeds from each farmer would be enough to establish 32 ha). Thirty-two secondary farmers each got 25 kg from each primary farmer; (13 of them), leading to the establishment of 32 × 13 ha, i.e., a total of 416 ha of cowpea CS seeds. These were distributed to other cowpea farmers for commercial crop production. The fields were inspected by the NSS.

Strategies to Improve community seed approach (informal seed system)

The rate of adoption of improved seeds is low, partly due to lack of interaction between the formal and informal seed systems. It is rare to find improved varieties bred at the research stations being passed on to the informal sector for multiplication and sale as an essential part of the national seed policy. Yet it is the informal sector that holds the key to improving access to seeds and crop productivity among smallholder farmers, especially seeds of self-pollinating crops. In recognition of this fact, the NPFS has made community seed production an integral part of its activities. The formal seed sector has shown little interest in seed multiplication for self-pollinating crops and crops with high seeding and low multiplication rates. The cost of production, processing, and transportation has made seeds of these crops expensive. Also farmers tend to save and use their own seeds, thus offering little demand for them and low returns to seed companies. For such crops the most economical way is to produce FS or high quality CS and sell these to identified seed growers within the community.

The quality of Informal sector seed used by farmers can be improved in several ways:

1. Train farmers in seed production strategies (selection, isolation, treatments, storage, etc.).
2. Link farmers to seed companies and research institutions for routine renewal of seed stock by giving them new stocks of FS or CS.
3. Develop new improved varieties meeting local quality and market preferences and produce good quality seeds of these varieties through formal and informal channels and popularize the varieties to increase demands for seeds.
4. Use effective extension services. Extension plays a crucial role in training farmers in crop and seed production and is therefore a prerequisite to establishing a seed system, since farmers needs training in various aspects of seed production.

Conclusion

The community seed dissemination strategy has been used by IITA, IAR, and the ADPs of Kano, Kaduna, and Jigawa States to promote the adoption of new varieties of cowpea, sorghum, groundnut, and millet in these States. IITA, NSS, and FCT ADP under the Strategic Seed Reserve Project used the same strategy to promote IT90K– 277-2 and IT93K–452-1. The NPFS is also using the strategy to promote cowpea, sorghum, maize, and millet varieties at 109 NPFS sites in the 37 states including FCT. It is a strategy complementary to the conventional means of seed dissemination by the seed companies and NGOs. Two factors determine farmers' demand for seeds of improved varieties: (1) level of interest in the new varieties, and (2) whether the seed system is appropriate for the crop and varieties and practical for farmers.