

Highlights

CIAT in Africa

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Developing sustainable seed supply systems

One of the most pressing concerns related to seed supply of modern varieties is how to establish sustainable seed provision systems for commodities that cannot be economically supplied through a centralized, formal seed industry. The seed supply bottleneck primarily affects self pollinating crops (e.g. the common bean, groundnuts, rice), vegetatively propagated crops (e.g. sweet potatoes, cassava) and crops with limited seed demand (e.g. indigenous vegetables, forages, open pollinated maize). Crops in these three categories bring little profit to seed companies for several reasons: uncertain and fluctuating demand caused by competition from farm-saved seed (grain legumes), low multiplication rates (grain legumes), transportation and storage difficulties (soybean, root and tuber crops) and strong regionally specific preferences (grain legumes, indigenous vegetables).

The four steps suggested in introducing new varieties and developing sustainable seed production capacity are:



- ◆ Promote and create awareness of new varieties
- ◆ Formal institutions (research, projects, NGOs etc) sell seed for a limited time
- ◆ Analyze local seed systems and assess seed demand

- ◆ Develop commercial seed production units at the local level

Varietal promotion

It is important to target a wide range of users when promoting new varieties. These include farmers, the government extension system, NGOs and community-based organizations (CBOs), traders and the formal seed sector. Information should be specifically targeted to a particular user or set of users, and formatted accordingly. Information on new varieties can be presented as technical bulletins and brochures, radio announcements, radio

jingles, posters, comics and cartoons. Drama is an excellent way to promote new varieties especially when seed is sold during performances. Basic information that should be provided in any promotional material include: the name of the variety (use a local name if possible), yield, cooking time, positive and negative characteristics, growth habit, days to maturity and, very importantly, where seed can be obtained.

The small seed packet approach

The sale of small seed packets by formal institutions (research programs, development projects, NGOs etc.) is a highly effective, short-term strategy for introducing a new crop variety and stimulating demand for seed. Action research in Uganda, Rwanda, Tanzania and Malawi shows that small-scale farmers of all wealth categories are willing to buy certified seed of little known or even unknown bred varieties if the varieties have acceptable observable characteristics (color, size, shape etc.) and certain marketing principles are observed. These principles include small packaging quantities (50g to several kilos), labelling in local languages, distribution through multiple market and non-market channels (e.g. clinics, women's groups), and a pricing system that recognized that farmers are only willing to pay a small premium for clean seed. Initially small seed packet programs have to be subsidized, but there is evidence from some countries that farmers are willing to pay unsubsidized prices.

Using this system, a mere 50 tons of seed can reach up to one million farmers!



Ugandan farmers buying bean seed packets in a market

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Understanding local seed systems and seed demand

In the 1980s many researchers, extension services and NGOs assumed that farmers do not buy seed but rely mainly on their own stocks or obtain seed from other farmers. Research on bean seed systems in Rwanda, Burundi, DR. Congo, Uganda and Malawi shows that while most farmers obtain much of their seed from their own stocks, commercial sources (markets and shops selling grain) are next in importance. An estimated 10-15% of Ugandan farmers buy bean seed every season; in Rwanda, Burundi and DR Congo, this proportion reaches 20-40%. Moreover, in all countries studied, poorer farmers are the most dependent on grain markets because of low production, poor storage conditions and their tendency to consume or sell their entire harvest. Better-off households tend to purchase bean seed for different reasons: to restock after periodic crises, improve their genetic stock or expand crop area.

Local seed systems research offers important insights and information on seed demand, farmers' seed sourcing behavior, seed management practices and varietal diversity needed to design appropriate seed delivery approaches and strategies.

Commercial, local level seed production

In areas of high seed demand, once a new variety has been introduced into local seed systems, there may be need for a regular supply of reasonably clean seed. Individual farmers, groups, business people or local institutions with the necessary resources can be trained as specialized, commercial seed producers. They require training in seed production techniques, plant protection, post-harvest handling and business skills and initially need regular monitoring and follow-up.

Local level seed production is appropriate for supporting a multiple varietal release strategy aimed at the needs of small farmer production. For crops that have irregular and fluctuating demand, a multi-commodity seed enterprise is recommended. The development of decentralized systems of seed production calls for forging strong collaborative linkages between seed producers, entrepreneurs, researchers, extension agents, NGOs, credit institutions and the formal seed sector as depicted in Figure 1. Notably, a commercial approach may not be appropriate in all situations and is only sustainable in situations of high seed demand.

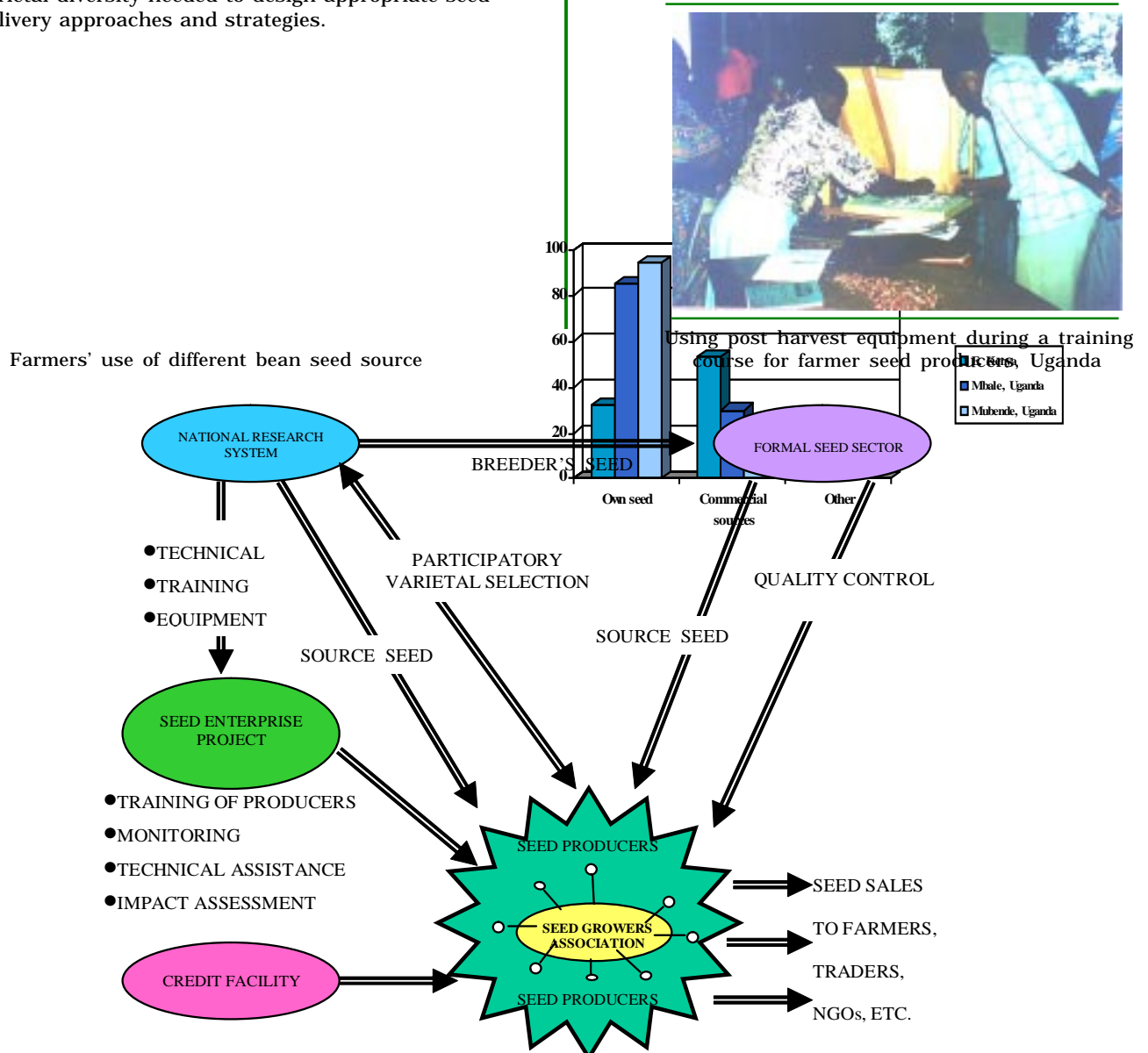


Fig. 1: Conceptual model of a decentralized commercial seed production system