Seed Aid for Seed Security

ADVICE FOR PRACTITIONERS

Understanding Seed Systems Used by Small Farmers in Africa: *Focus on Markets*

A great deal has been written on formal and informal[1] seed systems in Africa. However, the importance of the local seed/grain markets[2] has gone largely unrecognized and unappreciated as a distinct and expanding presence. This brief will introduce the formal and informal seed systems and highlight the growing importance of seed/grain markets for seed system stability and growth. It will also suggest concrete opportunities for greater integration of the formal and informal seed systems – centering on the strengthening of local markets during normal times as well as during disaster periods.

There are significant opportunities to improve the integration of formal seed systems with seed/grain markets. These cluster around linking such markets to sources of new varieties, supporting training in seed production and providing business development services to emerging smaller-scale seed enterprises.

Formal and Informal Seed Systems

Farmers, particularly smallholder farmers, use many systems to access seeds.

The formal seed system can be characterized by a clear chain of activities. It usually starts with plant breeding and promotes materials for formal variety release and maintenance. Regulations exist in this system to maintain variety identity and purity as well as to guarantee physical, physiological and sanitary quality. Seed marketing takes place through officially recognized seed outlets, and by way of national agricultural research systems (Louwaars 1994) and even through relief seed programs. The central premise of the formal system is that there is a clear distinction between 'seed' and 'grain'. Formal systems are especially important when seed is used to grow crops for commercial purposes (for example export or further food processing) and the uniformity and high quality of the product has to be guaranteed.

The informal seed system is basically what the formal system is not. Seed-related activities tend to be integrated and locally organized, and the informal system embraces most of the other ways in which farmers themselves produce, disseminate and procure seed: directly from their own harvest, through barter among friends, neighbors and relatives, and through local grain markets or traders. The same general steps take place in the informal system as in the formal but as integral parts of farmers' grain production rather than as discrete activities. Local technical knowledge and standards guide informal seed system performance, including the prevailing market forces. Perhaps because of its local specificity to needs and preferences the informal system provides most of the seed farmers use, worldwide between 80% and 90% of stocks. The important exception concerns hybrid maize (see Box 1).

Figure 1 overleaf shows schematically the formal and informal dimensions of seed systems and how flows of varieties and information between the two are routine.

1 The "informal system is sometimes also referred to as 'local', 'farmer', or 'traditional' seed systems.
2 We use the word 'local' seed/grain market to distinguish it from centralized more formal commercial enterprise. Seed arriving in the local markets is sometimes sourced from areas quite distant.

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BOX 1

Hybrid Maize: The Special African Case

It is hybrid maize that provides the exception to the rule in terms of local system seed use. Maize hybrids have been the main growth engine for formal sector seed and for profitable commercial enterprise in Africa. Quite simply, maize lends itself to commercial seed production.

- **Maize outperforms other cereals (pearl millet, sorghum, upland rice) in high-potential, rain-fed agro-ecoregions. The area planted to maize is large and the demand for seed substantial.**
- **Commercial (modern) maize varieties can significantly outperform local (traditional) varieties across the better environments.**
- **Genetic quality of commercial maize varieties (especially hybrids) erodes under farmer seed management (when seed production is integrated with crop production).**
- **Hybrid maize seed production is technically complex, exceeding the management capacity of smallholder farmers.**

Throughout Africa, governments and donors have supported the maize seed sector through breeding, extension, production subsidies and support to commercial seed enterprises. Large seed enterprises exist only where maize is an important commercial crop.

In East, Central and Southern Africa, informal and formal seed systems coexist and opinions diverge on the strengths and weaknesses of each. Proponents of informal seed systems often view the formal sector as a threat to crop system resilience and agrobiodiversity. Proponents of the formal seed system believe that commercial seed production is a prerequisite for sustained increases in crop productivity through the use of high quality seed of new[3] varieties. Increasingly, however, there is a realization that farmers are sourcing less and less seed from their classic 'informal' source – their own stocks – and that this farmer seed is not being replaced by commercial seed. Rather, farmers are sourcing seed from local seed/grain markets.

In reference to markets, it is importance to distinguish between different types of seed/grain commerce. Local markets bring in grain, which is subsequently sorted and used by farmers for seed (hence the term 'seed/grain markets'). This is different from commercial, formal sector seed, which is specially produced as seed, on specialized fields, within the framework of a seed business enterprise.

Growing Importance of Seed/Grain Markets: an Evolution in Perspective

For a long time it was believed that farmers would buy seed on the local market only if they had failed to harvest own seed, or lost their stocks, or were unable to obtain seed from family, friends and neighbors. In Eritrea, for example, seed sourced in the market was commonly referred to as 'beggars' seed.

However, over the past five years, practical seed system analysis has sharpened our understanding of the role of the local seed/grain market. Thinking has evolved along these lines:

- Initial belief that sourcing seed in local markets was a symptom of the failure of the farmers' own ability to produce seed from harvest.

3 'New' is used to denote a variety developed by breeders in the formal seed system. It is used instead of 'modern' and 'improved.'

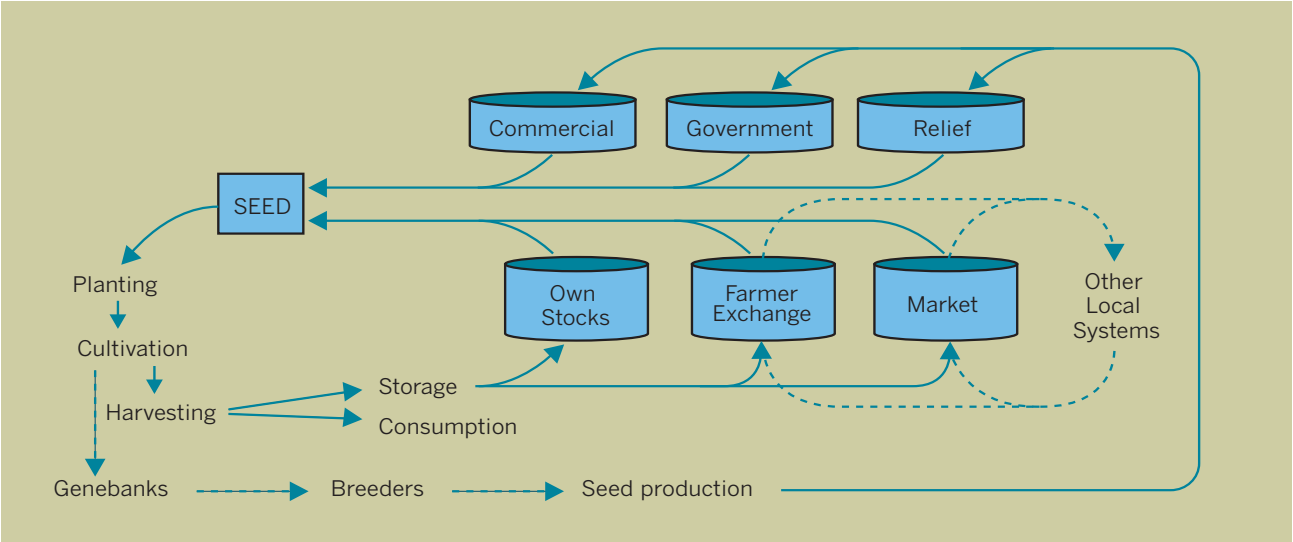

FIGURE 1: Channels through which farmers source seed are depicted by the cylinders. Own seed stocks, exchange with other farmers and purchase through local grain markets constitute informal channels. Commercial seed stockists, government or research outlets and relief supplies constitute formal channels. Adapted from Almekinders and Louwaars (1999), appearing in Sperling, Cooper and Remington, forthcoming).

- Acceptance that market seed is an important complement to farmers' own production and also to commercial, formal sector seed.
- Realization that the market seed channels are relatively efficient and that farmers rely on local market seed for sound reasons of convenience, availability of varieties, price and adequate quality.

Seed/Grain Markets: Reassessing Opportunities

Field analysis of seed systems has helped to question stereotypes and to identify opportunities rather than focus on constraints. Across Africa, market-related findings are demonstrating that:

- Market-sourced seed (especially for self-pollinated crops) serves as the core for seed security, especially among the more vulnerable farm families.
- Local grain markets, from which farmers obtain seed, prove durable in stress periods (during drought, flood and even instances of civil strife).
- The genetic quality of seed sourced in markets is most often acceptable to farmers, as it is generally grown in nearby agro-ecological contexts that match their own needs.
- The physiological and phytosanitary quality of seed purchased in local markets can be partially regulated (by sorting and acquisition from known contacts) and is often objectively good.
- Local seed/grain markets are often important channels for moving new varieties. In fact, for some crops, local markets move new varieties more effectively than formal diffusion channels.
- Markets prove to be a useful source for re-accessing seed of desired types and quantities that had been lost or temporarily abandoned in times of stress.

(See Sperling et al. 2004)

When analyzed within the context of the intensification of farming systems, the shift away from own-saved seed and toward local seed/grain markets is not surprising – particularly if markets can deliver a desirable range of crops and varieties, on time, and at acceptable quality and price. Today, seed/grain markets are the major source of seed for many farmers in many different cropping systems in Africa (for example, beans in Burundi, groundnut in Senegal and Gambia and most crops in semi-arid eastern Kenya).

Towards Integration of Local Seed/Grain Markets in Seed Sector Strategy

The Status Quo

Formal seed systems are presently poorly integrated with the local seed/grain channels. Formal systems are closely managed, from the development of varieties to multiplication and certification to marketing by commercial outlets to farmers. One might read the formal strategy as consciously avoiding integration with local seed/grain markets.

The motive in doing so is to maximize commercial seed sales and company profitability through sustained volume sales. It is not to reduce farmers' costs or to maximize farmer return on seed investments. Hybrids are a good case in point. The advantage for the seller, the commercial enterprise, is that farmers have to buy seeds every year or every other year.

Recurrent purchases by farmers are obviously important for the sustainability of the commercial seed system. When small quantities of seed from the formal sector enter the informal seed system and are then multiplied and recycled within social networks or acquired *via* grain markets, the revenues of the formal seed system remain low.

> Traders and farmers' groups need continuing support to enable them to play a greater role in delivering higher quality yet affordable seed *via* local channels.

Perhaps because the strengths of local seed/grain market channels are largely unrecognized (or actively denigrated) such channels receive no support from either governments, who bolster the formal seed system, or from NGOs, who tend to support farmer production for home or local community use. Consequently, and in spite of its significance, the local seed/grain market has almost no formal access to new varieties, to basic (foundation) seed as an input, or to seed quality control services. In spite of this lack of support, there are dramatic examples of how quickly new varieties move through the local market system (for example beans in western Kenya and green grams in eastern Kenya), fueled by farmers' word of mouth that the new varieties on offer locally really do perform.

Moving Forward Towards Integration in Normal and Emergency Periods

If farmer production is to be maintained and strengthened seed sector analysts and practitioners need to give considerable thought as to how to support the local seed/grain markets. There are significant opportunities for better integrating the formal seed systems (and expertise) with the seed/grain market channels. These broadly cluster around facilitating access of seed/grain markets to new varieties, providing training in seed production (with an emphasis on higher, but affordable, quality), and providing business development services to these emerging, smaller-scale enterprises.

During Normal Times

During normal times, initiatives could usefully focus on improving both the variety and quality of seed sold in local markets, especially as this is proving to be a core source of seed for more vulnerable farm families. These include:

- Greater support needs to be given to increasing the seed quality of crops and varieties in greatest demand at the markets. These may be local varieties or they may be new ones, but those supplying large quantities of seed/grain to the market need to be trained to produce better seed (which does not need to be certified). Up to now, such training has been localized in small community-based groups, often by development projects. General knowledge on targeted ways to raise seed quality has to be mainstreamed in farming communities.

> Market-sourced seed, particularly for self-pollinated crops, serves as the core for seed security, especially among more vulnerable farm families.

- Farmers and farmer groups need a good deal more training in agro-enterprise development. It is not enough to produce good seed. Such seed needs to bring profits on a continual basis. The commercial sector has shied away from subsistence crops and open-pollinated varieties as the profits are not sufficient. Hence, communities have to diversify production among crops and varieties and, crucially, need to have ongoing supplies of new and appreciated materials to stimulate demand.
- In reference to the point above, direct links needs to be forged between variety innovators and those who can multiply and distribute seed at a decent price. Right now, new varieties filter through to communities unacceptably slowly. Research systems have to deliver new materials not only to seed parastatals and commercial communities but directly to important community-based nodes right across the country.
- Traders and farmer groups need continued access to quality control support – which is enabling and not threatening. A trader who becomes known for truly good seed should eventually be able to garner worthwhile price margins.

Such integration would direct benefits to farmers-consumers, traders and potentially to national economies as production gains translate into increased revenues. The commercial seed sector could potentially benefit too, but only if the exposure of farmers to modestly better quality seed creates demand for the highly specialized products proffered by commercial enterprise.

During Emergency

The link between strengthened seed/grain markets in normal times and in disaster is direct. Higher quality seed and improved access is better at all times. Concerted, ongoing market strengthening should herald changes in the way such markets are regarded during periods of stress and emergency. For too long, seed for disaster relief has been sourced from the commercial seed sector, and its quality is often dubious. ('Commercial seed aid' is often but grain from market, conditioned, packaged and re-labeled; see the eastern Kenya and Zimbabwe cases in Brief No. 2).

Local seed/grain markets can increasingly be made use of in disaster response *via* distribution of vouchers, cash, or a combination of vouchers and seed fairs. In the past, such systems have delivered sufficient seed and seed of acceptable crops, varieties and quality. Local markets are also important features in regional economies. They need to be supported, not undermined, particularly in stress periods.

In sum, we need to look at local seed/grain markets as opportunities rather than constraints. With more targeted alliances, such markets can be crucial for moving new varieties from the formal sector more rapidly and more widely. With strategic support the products that local seed/grain markets offer can change from being 'farmer-acceptable and known' to 'much better than what the farmers have in their hands'. Finally, because the local seed/grain markets are so crucial to farmers' welfare, improvements in normal times immediately translate into improvements during periods of stress.

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