Seed Aid for Seed Security

ADVICE FOR PRACTITIONERS

Using Seed Aid to Give Farmers Access to Seed of New Varieties

Farmers are keen to obtain and evaluate new crop varieties. This process of experimentation and subsequent introduction of adapted and accepted varieties can potentially strengthen farmers' cropping systems by increasing yields, improving drought resilience, boosting resistance to pests and diseases and also by capturing new market opportunities.

Introducing new varieties can also play a role in restoring food security at times of crisis. Crises may alter preferences, for instance when populations relocate, or crisis may even be caused by crop and variety breakdowns (for example spurred by plant disease or sharply declining soil fertility). Both situations leave farmers in want of appropriate planting material. Crises may also be seen as an opportunity to introduce new varieties, *via* the extensive seed aid channels, in order to promote what are considered more 'modern' practices and thus to strengthen systems plagued by low production.

Regardless of the potential for improving smallholder productivity through the introduction of new varieties, it is important to start by questioning the legitimacy of such introductions during crises. In periods of emergency and prolonged stress, small farmers are already at levels of increased risk. They are generally poorer, having lost household assets, livestock or crops in the field, and they cannot afford to waste further often scarce land or labor resources. Further, they need to have some confidence that the next planting season will yield better than the present, stressed, one. Outside aid, minimally, should put on offer products or processes at least as good as those already in farmers' hands. While formal sector varieties are referred to as 'improved' and the quality of the seed is certified, these varieties often yield poorly in many smallholder cropping systems. Such new varieties may not be adapted to the local agro-ecological conditions and farmers may not possess the management inputs (for example fertilizers and pesticides) crucial for their growth. So an 'improved variety' does not mean that performance is guaranteed.

This brief suggests 'better practice' for introducing (or not) new varieties in situations of acute and chronic stress. It presents a series of technical guidelines that need to be considered prior to any variety introductions. The brief is also framed by a set of precautionary notes: if humanitarian assistance involves crop or variety introductions, even 'emergency' short-term interventions should be programmed within a longer-term plan of action.

New varieties can increase food security in the wake of disasters, but only if practitioners work with farm communities and other informed personnel to minimize risk. Introducing new crops and varieties, especially after crisis, also requires a multi-year vision and commitment.

Introducing Varieties in Acute Stress Periods

Seed aid that is considering the possible introduction of crops or varieties has to be programmed to embrace a well-planned set of steps. These are summarized in Box 1 and elaborated in the text that follows.

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BOX 1

Introducing New Varieties in Acute Stress Periods: Key Steps

- **Conduct a Seed System Security Assessment.**
  - **What are the current seed system weaknesses and strengths?**
  - **Would new varieties open up promising opportunities: why, how, for whom?**
  - **What are the potential risks?**
- **Work with farm communities and other informed personnel to choose possible new varieties.**
  Is there sufficient prior evidence that varieties:
  - **Are adapted to the specific agro-ecological zones?**
  - **Meet farmers' acceptability criteria (harvest and post harvest for subsistence and market use)?**
  - **Can be successfully used under farmers' own management conditions (e.g. without fertilizer)?**
- **Design introductions so as to minimize risk and maximize farmers' informed choice.**
  - **Offer 'test size' packets: introductions should be small-scale.**
  - **Give farmers choices: to use the variety or not. And if possible, put several varieties on offer.**
  - **Provide sufficient accompanying information to allow farmers to make variety choices and management decisions (planting time, levels of input use, crop associations).**
- **Build in explicit monitoring and evaluation of new varieties: are they performing? For whom? Where?**
- **Count on a multi-year process.**
  - **Can the new introductions be successfully integrated into stressed farming systems?**
  - **If yes, is further fine-tuning needed?**

Conduct a Seed System Security Assessment

Often, a disaster and its ensuing seed aid are viewed as an opportunity for large scale distribution of seed of modern varieties. An assumption may be made that farmers have experienced crisis in part due to a weakness in their crop systems – which would include under-performing crops and varieties.

Before contemplating any introduction, implementers should conduct rigorous seed system security assessments (see Brief No. 7). This should be done with the recipient communities and with informed research and development personnel who know the local agro-ecological systems well. It is important to get an overview of the strengths and weaknesses of current agricultural and seed systems. Teams also need to have an in-depth understanding of the root causes for any stress to the seed system.

> Small test packets and plenty of information will enable farmers to decide whether and how to incorporate a new variety or crop into their system.

Fundamentally, a decision to introduce new varieties needs to be founded on sufficient evidence that new varieties offer promising opportunities, and, equally, that their introduction will not expose farmers further to increased risk.

Initial prior assessments must also provide good insight into farmers' awareness of, access to and use of new varieties. Answers to key questions (Box 2) will help guide further strategy – and may be particularly important for ensuring that the right farmers (i.e. the vulnerable) are well-served by the intervention.

Work with Farm Communities and Other Informed Personnel to Choose Possible New Varieties

A Seed System Security Assessment for any given region should result in an inventory of varieties by crop, including varieties currently used by farmers, as well as new varieties not yet available to farmers for testing. New varieties of potential interest to farmers usually come from the formal sector; international research centers, national research organizations and commercial seed companies. Institutions proposing candidate varieties for use in specific farming regions should submit documentation detailing performance of the new materials to those considering the distribution of such entries (e.g. NGOs). Such documentation might also be usefully reviewed by knowledgeable local extension agents as well as key farmers (depending, of course, on its language and format).

The suitability of new materials for use in a particular zone and for a well-defined client group needs to be assessed. Not everything new is good. Appropriate varieties should have:

- Evidence of adaptability to cropping system and prevailing agro-ecological conditions.
- Evidence of acceptability according to the preferences and experiences of farmers who are most affected by the stress. If, traditionally, farmers produce for domestic consumption, varieties should be acceptable for these standards.
- Evidence that they can be used under the management regimes in routine practice, including by the vulnerable (i.e. not be highly dependent on inputs such as fertilizers that the poorest farmers often cannot access).

BOX 2 Farmers' Awareness of, Access to and Use of New Varieties: Guide Questions

- **Do farmers currently have access to formal sector seed (of improved varieties)? If not, why not?**
  - **Is it a question of purchasing power? It is often the wealthier who seek out new varieties *via* certified seed.**
  - **Might there be a lack of varieties useful for the farmers' specific agro-ecological zones? Note that many new varieties are screened particularly for higher potential areas.**
  - **Is the constraint related to lack of nearby distributors or distribution points? Formal seed stockists may tend to cluster in larger town centers.**
- **Have farmers already experimented with new varieties?**
  - **If so, with what results?**
  - **If not, why not?**
- **Are farmers aware that there are new varieties that may improve productivity or provide new market opportunities?**

Note that maize hybrids, in particular, are often promoted as new items on offer in stress contexts. However, their performance under low-input, high stress farming has been uneven, and has often failed almost completely (see Ethiopia, Kenya, Malawi and Zimbabwe cases in Brief No. 2). Simply, hybrids usually demand inputs and better soils. Furthermore, the seed supply needs to be 'bought' the next season because hybrids cannot be resown and retain their productive vigor.

It is important for implementers to be very clear about the objective of introducing new varieties. In an agricultural recovery project, introductions should give farmers access to seed of new and desired varieties, so that they can experiment with them and add them to their systems if they choose to. The objective should not be to satisfy 100% of a farmer's seed needs with commercial seed (nor, as a hidden objective, to expand the customer base for the commercial sector). It should also not be to replace local varieties that may be seen by outsiders as inferior.

Design Introductions so as to Minimize Risk and Maximize Farmers' *Informed* Choice

Even use of 'best bet' varieties (that is, those pre-screened for potential adaptability, acceptability and usability) is not risk free. In an acute crisis, farmers need access to test packets of seeds, a basket of variety choices among which to select test candidates and enough information to make informed decisions about the varieties offered.

Packets

Seed delivered in small quantities will enable farmers to learn about the new materials without compromising their production stability. Sizes should be small enough that any production loss will not dent harvests. Farmers in many African regions are used to the format of such 'peanut-sized packages' and have favorably received new varieties this way in the East, Central and Southern African regions.

Variety Basket – and Choices

Farmers should always have a choice as to whether they want to accept a new variety or not. In addition, experiences drawn from actual field practice suggest that a basket of varieties should be on offer to contribute to crop and variety diversity and to potentially increase resilience.

Sufficient Information

Farmers need solid accompanying information to make knowledgeable choices and management decisions. Written information sheets (preferably in local languages) have proved useful, as have pictures and diagrams for the less literate. Information leaflets should communicate to farmers the existence of new varieties that may be of interest, describe the attributes of the new materials and give guidance on how to manage them (including signaling management practices that may differ from farmers' norms).

Build in Explicit Monitoring and Evaluation of New Varieties

All too often seed aid is an extension of food aid: monitoring and evaluation focus on logistics and subsequent reports are administrative and perfunctory. Increasingly, however, seed aid is seen as very different from food aid. Better, more nuanced assessments of seed systems and seed security are resulting in recommendations of more complex and integrated responses. Especially when an objective of variety introduction is included, it is important to monitor and evaluate – with farmer participation – the performance of the new varieties and to report on results and recommend next steps and changes to improve the process. It is important to signal if the varieties are yielding – but for whom, and where, and under which management conditions.

An 'improved' variety does not guarantee better performance. Practitioners and farmers will want to be sure that the variety is adapted to the conditions on the ground.

BOX 3

Introducing New Varieties in Conditions of Chronic Stress: Key Steps

- **Conduct an analysis of the existing seed security situation with target communities and explore alternative solutions for solving well-defined seed security constraints – and opportunities.**
- **Expose farmers to a wide range of promising varieties of the target crops and do the testing under farmers' own management conditions.**
- **Help target communities to select varieties of their choice and to communicate back to extension and research the reasons for their preferences and selections. (Such feedback should also help to fine-tune the breeding process.)**
- **Support the multiplication of start-up materials. These include the foundation or basic seeds that are the origin stock of pure and clean varieties.**
- **Encourage and support decentralized production and distribution of preferred varieties, for example through local traders and community-based seed multipliers. (Local seed producers might demonstrate and promote their products so as to create a sustained demand for preferred varieties.)**
- **Enhance farmer capacity to produce seed for own use and for sale. (Such agro-enterprise skills can provide a real bridge toward income generation.)**
- **Eventually, ensure diffusion of seed by building on existing seed channels, agro-enterprise initiatives, but also non-seed channels such as health and nutritional centers or soft drink kiosks etc.**

Count on a Multi-Year Process even for Interventions Spurred by Acute Stress

Clearly, the introduction of new varieties cannot be a one year, one-off activity. It is essential that the performance under farmer management of the new varieties informs subsequent recovery steps and that the response to future disasters also takes this information into account. Assuming that the objective is to strengthen and integrate farmers' own seed systems, investment needs to be made to determine how to maintain the variety at least cost to farmers and how the seeds themselves can be made available and accessible on a continuing basis.

Introducing New Varieties in Contexts of Chronic or Prolonged Stress

Chronic and prolonged stress affects farmers who are subject to repeated 'disaster' situations such as frequent drought, or who experience slower stress build-ups, such as increases in pests and diseases over time. Many of these populations are also economically marginalized, trapped, and often facing destitution. Although introductions of improved varieties alone may not be enough to solve the underlying problems faced by these farm families, they can be both an effective addition and a useful entry point for more ambitious interventions to ensure longer-term development. Access by all farmers to adapted and appropriate plant material (including new variety introductions) is vital in these contexts. However, given the longer-term stress and the likelihood of such stresses recurring, the process for variety selection and introduction requires sustained and continuous commitment by scientists and farming communities alike.

Chronically-stressed farmers are not economically attractive clients for seed companies (farmers just don't have the needed cash) so the onus of maintaining varieties often rests with the communities themselves.

A number of key steps can help to make the introduction of new varieties in conditions of chronic stress an effective process and decrease the chances of failure. Note that the focus of Box 3 is a solidly developmental one.

Enabling Innovation

Marginal farmers in chronically-stressed areas are not commercially attractive clients. Therefore communities themselves have to be linked to research programs and should have access to research products. These links might be direct or through intermediary organizations such as NGOs and development organizations. In all cases, these links have to be made explicit – and institutionalized. Exposure to innovation needs to be continuous, not one-off.

- Keep farmers, local seed producers, and agro-entrepreneurs abreast of advances in breeding and give them access to a dynamic supply of promising new varieties.
- In the particularly 'hard case' areas, where the adaptation stress is high (such as regions where soils are scarce or very poor) involve farmers in sustained participatory plant breeding and selection programs to ensure that the material is adapted on site and to secure a tradition of experimentation and direct client evaluation.

Support for the decentralized selection by farmers of preferred varieties (as well as their production and marketing) should be seen as part of a wider set of interventions to decentralize service delivery to farmers. The ultimate goal goes beyond varieties and seed. The aim is to enhance the capacity of communities to implement their own recovery and development in ways that mitigate the effects of cyclical and prolonged stress periods.