

Seed Aid for Seed Security

ADVICE FOR PRACTITIONERS

Agrobiodiversity and Seed Relief

Disaster, as well as subsequent relief and recovery activities, can have significant impacts on agrobiodiversity. In this context, by agrobiodiversity we mean the full diversity of crops and their varieties that may exist in a farming system. We are not specifically addressing livestock, nor other unmanaged components of systems (such as bees or wild plants).

In terms of disaster effects and humanitarian aid, the issue of agrobiodiversity is important for three groups of stakeholders:

- For those focusing on quick recovery; greater agrobiodiversity contributes to production stability. It helps farmers to avoid and mitigate different risks, because different crops and varieties resist different diseases, insect attacks and environmental stresses such as drought better than others. A range of agrobiodiversity can also help farmers to stagger their harvest of incoming food supplies and labor needs, which is important when resources are few and far between.
- For those focusing on plant genetic resources, maintaining the diversity of crops and varieties is important in itself because this genetic diversity provides the raw material for agriculture's future adaptations as well as the genetic traits for crop improvement programs.
- For those focusing on longer-term system strengthening, the introduction of new varieties potentially increases productivity, and captures market opportunities – but also may affect agrobiodiversity negatively and positively.

This brief examines the more immediate and practical dimensions of agrobiodiversity in farming systems.

During normal times, a range of agrobiodiversity allows farmers to spread risk, increases their resilience to shock, and often translates into more nutritious diets. These are key issues when people live from what they sow. During emergency stress times the stabilizing features of agrobiodiversity become potentially even more important. So what features of agrobiodiversity should be considered in responding to emergencies? And what impact do different kinds of activity have on agrobiodiversity? This brief explores those questions.

Agrobiodiversity enables farmers to spread risk and increase resilience to shock. These stabilizing features of agrobiodiversity become more important during emergency stress periods.

Why Agrobiodiversity is a Central Concern in Emergency Response

Issues of agrobiodiversity need to inform emergency response in several ways. First, relief efforts should not compromise functioning systems of agrobiodiversity; that is, they should not undermine the use of a wide range of adapted crops and varieties that remain productive and in wide use. Secondly, if supply-side interventions are deemed necessary, the interventions should embrace principles associated with the maintenance of agrobiodiversity. These principles include:

- Attention to local adaptedness of crops and varieties.
- Focus on crops and varieties that meet local preferences, putting multiple options on offer.
- Treating farmers as customers and giving them choice.

There is scant evidence to date that disasters (such as civil war, drought or flood) significantly alter profiles of agrobiodiversity. When loss does occur, it often proves to be only temporary. (The exceptions are cases where crops or varieties break down, usually as a result of disease or declining soil fertility.) By contrast, there are several examples where conflict-induced displacements have exposed farmers to new crops and new varieties that they then bring back with them when they return home, resulting in a gain – not a loss – of agrobiodiversity.

However, an increasing number of field cases

show that seed relief interventions, the humanitarian responses themselves, alter agrobiodiversity profiles and management negatively. The delivery of repeated seed aid changes farmers' seed procurement strategies away from actively sourcing several, often traditional, varieties *via* the local seed systems towards passively receiving hand outs of a small number (often only one) of modern

varieties. Direct Seed Distribution, when it is of a limited number of crops (and especially with a concentration on maize), can also skew patterns of plant use towards crops that may hold up less well under the stresses that farmers routinely encounter, particularly drought.

The central need to look at agrobiodiversity within emergency responses has been formally recognized in recent guidelines issued by the United Nations agency responsible for agriculture, The Food and Agriculture Organization. FAO's *Guiding Principles for Seed Relief* asserts, *inter alia*, that:

- Depending on the context, the focus in an emergency should normally be on keeping the local seed system operational...
- Seed relief interventions should facilitate farmers' choices of crops and varieties ... that are adapted to environmental conditions and farmers' needs... (See Sperling et al, 2004, full details below.)

In terms of agrobiodiversity, perhaps it is fortunate that seed aid has a circumscribed role in an emergency response. Seed aid is never provided to all farm community members – and often the better-off and less-affected farmers receive nothing.

Also, even when a family does receive seed aid, it rarely covers all of their seed requirements. So giving farmers less than their total seed needs in an emergency distribution can actually be beneficial for keeping local varieties in production.

Local crops and seed often remain in circulation and can be accessed *via* markets or exchange channels to complement the free (and often 'exotic') emergency seed assistance.

Seed Relief Approaches that Bolster and Strengthen Agrobiodiversity

Not all relief approaches are equally effective in bolstering and stabilizing seed and farming systems. We comment below on those that practitioners assert may do 'less harm' and that, in select cases, may actually support and enhance the range of crops and varieties in use.

Food Aid – Including Seed Protection Rations (SPR)

Food aid is underrated as a seed relief strategy. Delivery of such aid can allow remaining seed stocks and variety diversity to be maintained (and not eaten). The rationale for the SPR is that food aid is given particularly for the months prior to sowing time, during the 'lean times'.

There is scant evidence to date that disasters themselves significantly alter agrobiodiversity profiles. It is rather the subsequent humanitarian responses which often have negative consequences.

A note of caution is important here in lauding the virtues of food aid as a seed rescuing (or maintaining) strategy. In farmers' minds, food aid and seed aid may not be separate entities – and gifts of food may subsequently be planted. Hence, in several countries of southern Africa, genetically-modified food aid from the US has not been accepted in recent drought years because of fears that it would find its way into the fields. Consideration also needs to be given to food aid from in-country purchases: large procurements may impact on the overall availability of grain and local prices of seed grain.

Direct Seed Distribution that Procures from Local Seed Systems

Direct Seed Distribution takes many forms – some of which can damage local seed (and economic) systems. Bringing seed in from outside can undermine functioning markets and introduce cultivars that are not well adapted to local conditions. In terms of agrobiodiversity, however, one variant of DSD seems to minimize damage to crops and varieties. When seed procurement draws from local markets, or regional traders, and when it distributes varieties from similar agro-ecological zones, farmers may get access to varieties they know and have used and that are well adapted. In variants of this local procurement strategy, implementers have *distributed variety mixes* (where these are routinely sown), and have tried to *distribute local varieties*. An inherent weakness in seed procurement is that the implementing agency must act as a competent broker for farmer clients and must know and understand seed quality and the specific preferences of farmers. Further, it is well known that local middlemen sometimes buy seed from small farmers to sell to NGOs who then distribute the seed back to the same or similar small farmers. One has to wonder whether the small farmers or the middlemen benefit most from this kind of intervention.

Seed Vouchers, Usually Combined with Fairs (SV&F)

Seed vouchers permit farmers themselves to select among the crops and varieties available within a region. These may be local (sourced from local markets or traders) or improved (sourced from commercial companies or specialized outlets). The point is that farmers themselves can choose and manage the crops and varieties they desire. Advertised seed fairs, which bring farmer buyers and sellers together in dedicated events, provide a range of seed from which farmers can choose. While fairs

cannot put on offer the full set of diversity available in a farming system, the profile of crops (often 5-15) and varieties (20 upwards) available in one place is relatively broad. Of course, putting diversity on offer does not guarantee that farmers will access it. Recipients often focus on one or two crops, and choose the more popular varieties of these.

Introduction of New Varieties in Forms of Seed Relief (Under Select Circumstances)

Under select circumstances, new varieties can help to broaden the diversity available in an area (although specialists in plant genetic resources routinely assert that new varieties push out the old). Key aspects to consider if introducing new varieties in seed relief include:

- That farmers need to be given a choice on whether to use these varieties or not (i.e. that new varieties be one among several options on offer).
- That seed be given in 'test' sizes, to mitigate farmer risk.
- That sufficient information accompany the seed so that farmers can make informed use and management decisions for integrating (or not) these new elements into existing farming systems.
- That there is research involvement to learn from farmer evaluations of the new materials.
- In cases where the intervention is not needed immediately, that demonstration plots (or other field stages) are used to help farmers assess the products they may decide to sow for themselves. (See also Brief No. 5.)

Food aid is an underrated strategy for seed-related assistance. It can allow people to save their remaining seed stocks and variety diversity, rather than be forced to sell or eat them.

Viewing emergency relief through an agrobiodiversity lens includes several basic principles (see Box 1)

In brief, the use of agrobiodiversity, that is the use of a range of crops and varieties, is a proven risk mitigation strategy that works in all sorts of situations, from drought to conflict.

Principles for sustaining and promoting agrobiodiversity in seed relief response

- Do not engage in seed relief that undermines functioning systems or that may compromise already stressed ones.
- Do not base the seed response on a large scale transfer of seed of varieties not currently used by farmers.
- Think hard before importing seed into a region and never provide a single variety of just one crop for all farmers: vary crops and varieties.
- Build on what is working: strive to stabilize seed systems through use of the channels farmers routinely use. Keep normal flows of crops and varieties moving.
- If supply-side seed interventions are necessary, consider those that may maintain or add agrobiodiversity.
- In all cases, give farmers crop and variety options, and the leverage (as well as the information) to strategize about what does or does not fit into their agrobiodiversity planning.
- If new variety introductions are on offer, monitor their performance, feed back to research and the formal seed sector, and actively consider effects on agrobiodiversity.

High levels of agrobiodiversity can also aid farmers nutritionally and economically. Seed aid should never dramatically alter such diversity either by adding or removing substantial amounts of diversity. Agrobiodiversity profiles can be dynamic, but the process has to be planned, and with farmers having the knowledge, skills and tools to make informed decisions about the crops and varieties they sow.

Acknowledgments:

L. Sperling, T. Osborn and D. Cooper 2004 Towards effective and sustainable seed relief activities: Report of the Workshop on Effective and Sustainable Seed Relief Activities. Rome, 26-28 May 2003. FAO Plant Production and Protection Paper 181.