

Seed Aid for Seed Security

ADVICE FOR PRACTITIONERS

When and How to Respond with Vegetable Seed Programming

Interest in relief activities focusing on vegetable seeds is growing due to the unique role they can play in supporting both nutrition and income. This brief will inform and guide the interest in vegetables and highlight distinct features of vegetable seed response, compared with staple crop seed response.¹

In many settings and situations, vegetables can help in special ways due to their inherent position in agriculture, commerce, and culture. These are summarized in Table I through three key lenses: cropping strategies, marketing strategies, and nutrition, with more detail offered later in the brief.

TABLE I
Why Vegetable Seed May Be Helpful in a Crisis

	Cropping	Marketing/ Livelihood	Nutrition
Vegetable programs can increase agro-biodiversity.	Decreases risk from any particular crop of crop loss and failure.	Spreads risk that demand will be absent or pricing unfavorable.	Can increase dietary diversity.
Vegetables can be grown intensively in a small space with focused attention on soil improvement, watering, and other management.	More easily managed when a crisis displaces/distracts some of the labor force. May be more viable when a natural disaster compromises soil in fields.	More easily grown and sold on a household scale than some crops.	
Many vegetables have shorter days to maturity than staple crops.	Reduces risk simply by the crop facing less time exposure to possible disruptions.	Potential income in the near-term in crises where any other type of income is lost.	Provides calories and micronutrients in the near-term in crises where a staple/storage crop is lost.
In some cultures with work roles strictly divided by gender, women grow vegetables. (Men may be the preferred sellers, though).	When men are displaced or distracted due to crisis, vegetable growing may rise in importance as a food source.	Can be processed into value-added products, preserved using simple techniques (solar drying).	Also common for women to prepare food – a good match with growing it.

Vegetable seeds can help spur nutrition and income gains.

Such gains are not, however, automatic. Ensuring access to novel farming techniques, marketing, and food preparation practices can help enhance success with seeds.

¹ This brief was prepared by Peter Marks (Seed Programs International), with inputs from Julie March (USAID US/OFDA), Louise Sperling (CIAT), and Anne Turner (CRS). Above photo: Gabrielle Ludlow

Vegetable Seed Supply and Security in Normal Times: Assessment

Prior to planning a vegetable seed intervention, an assessment to address the following questions must be considered:

What were vegetable farming and gardening methods during normal times? Are these disrupted, or not?

- How was seed procured or produced?
- Are there missing inputs which would prohibit successful production such as manure/fertilizers? Certain materials, such as rough posts and thatch to build and shade above-ground seedling nursery beds?
- What were the seasonal cropping patterns? Some vegetables have 2–4 possible growing seasons per year. How have weather, displacement, or natural disaster modified this?
- What strategies were used to reduce risk? Most vegetables face highly crop-specific pests and diseases.

What crops and varieties were selected in normal times, and why? Were certain varieties grown because of interest in:

- Processing, such as a type of pumpkin with seeds that dry well?
- Storage, such as a type of cabbage that can be stored buried in a pit?
- Sale, such as a form of lettuce in demand in local markets?
- Performance in a certain stress condition, such as a mustard green that persists through drought?
- A particular flavor or texture profile?

What happened after harvest?

- What were key outlet markets? Are they disrupted, or not?
- What were key food preparation strategies? Are they disrupted, or not?
- Who grows vegetables – women, men, what ages? Who takes them to market? How has this demographic changed?

Understanding of how the situation has shifted or been disrupted is crucial to designing an appropriate program. It is important to plan the right intervention, not just the intervention that's easiest to implement.

Local engagement at all levels can help protect against inadvisable program design choices. An FAO response to chronic stress and seed access barriers in Gaza Strip provided seed for melons, okra, and squash. The program involved “local village councils, farmer cooperatives and associations, the Ministry of Agriculture, and local partners to avoid duplication and increase synergy” (Saleh, 2014).

To clarify: pre-crisis *status quo* should not be treated as sacrosanct. Vegetables may not have been of high importance before – or their production may not be highly

disrupted – but elevating the role of vegetable production in crisis response may still be well-advised. A well-designed intervention allows for a smooth transition to locally-controlled perpetuation of strategies after the crisis recedes.

“Readiness” for Vegetable-Based Crisis Relief

Many practitioners now maintain some ongoing support presence in crisis-prone settings before or between crises. This is a time when assessment of vegetable/seed utilization in farming and diet, and training therein, become even more practical and paramount.

Vegetable growing efforts benefit from some trial and error – and experimentation is a risk that is not always appropriate to ask farmers in crisis to take. In normal times, and even in a crisis, practitioners find that some farmers are early adopters of new ideas and eager to take some risk as part of a balanced strategy to ensure survival. Such farmers are worth identifying as they can lead the way toward effective spreading of new practices to others.

BOX 1

Vegetable Seed Relief Before, During, and After a Crisis

When a tsunami devastated the Solomon Islands in 2007, local NGO Kastom Gardens Association had been assisting a community seed-saving and horticulture support program for more than a decade. Because much soil was saturated with saltwater after the tsunami, vegetable production in raised beds became a key crisis response. KGA was able to release more seed than usual and utilize a voucher program to ensure distribution to those most in need. Ten+ years of engagement around vegetable-growing and utilization topics gave much assurance that seeds would be well-used. In the second and third years following the flooding, Kastom Gardens ramped up local seed-multiplication efforts, with education intensifying as well (Martin, 2014). This type of extended response certainly increases the positive impact of vegetable seed aid.

Nutrition as a Purpose for Vegetable Seed Programming

In chronic stress situations, those fresh vegetables eaten, if any, may not be historic to the culture. The old micronutrient sources (whether vegetable, perennial, or tree-based) may have been lost due to environmental degradation or population displacement from historic settings. Diets sometimes become too starch-dominant because grains and tubers can be stored and eaten, or purchased most times of year. Repeated seed and food aid may contribute to constriction of diets.

While vegetables provide micronutrients like vitamin A (essential to sight and the immune system) and iron (key for pregnant women), they are also strong sources of calories, fiber, and some protein. Still, vegetables typically complete a diet rather than provide the initial main caloric basis for a diet. Therefore seed systems intervention to increase access

to vegetables can be seen as a supplementary approach when crisis or chronic stress has reduced diets to very little beyond starch, or when all food is scarce and another relief strategy is providing starchy foods.

To harvest, prepare, and taste new foods is an experiment for families in crisis and may not happen automatically, even when aid recipients face hunger and malnutrition. Knowledge of nutrition can also be lost across generations of stress and displacement. People may not understand how eating vegetables is helpful to themselves or their children. They may not have recipes or tools needed for vegetable growing and preparation. Leafy and soft vegetables are more perishable than many other foods, so gains from eating are very short-term unless post-harvest handling and processing information is distributed along with seed or vouchers.

For all these reasons, a focus on nutrition training is key to any vegetable seed program.

BOX 2

Subjects for Training: Nutrition and Vegetables

A program must include specific strategies to make nutrition gains through a vegetable program. The following training subjects may be considered for those who maintain an ongoing support presence in crisis-prone areas so as to boost “crisis-readiness.” Some may also be appropriate for rapid deployment as part of crisis response.

- **Nutrition education as to health benefits**
- **Integration with pre/post-natal education and clinic programs**
- **Post-harvest practices to retain nutrient value**
- **Vegetable preservation methods**
- **Food preparation/recipes**
- **Food safety – preventing contamination in field and in handling**

Income as a Purpose for Vegetable Seed Programming

Regardless of the type of crisis, today’s relief practitioners understand that ensuring recovery requires several years of continuing effort. Vegetable-growing programs are unlikely to be the very first response in a crisis, but they can be an enduring stabilizing element. Economists and disaster victims alike know that post-crisis food markets can feature marked shortages and surpluses, price spikes and crashes, and food quality concerns.

In the farm or garden plot itself, vegetables are typically grown in a mix, and include a diverse set of species. Dietary diversification on the household level, taken collectively, can help entire communities and regions to widen their food economy and buffer against this post-crisis roller coaster of supply and demand.

Income generation of the poor worldwide is often not a single job but a patchwork, pieced together from multiple seasonal sources. This pattern surges post-crisis when regular chief income sources may be disrupted. Vegetables may be sold in small quantities via informal markets and

fill a niche which lacks scaled-up competition. By “niche markets”, we mean that each small grower can potentially apply a business plan (formal or informal/unstated) to find her/his own unique blend of crops, harvest dates, packaging/presentation styles, and outlet markets. This sidesteps the issue of the larger scale producer and buyer competition that drives down prices. Also, excess vegetables from household-scale gardening can comprise a piece of the patchwork income for the family.

In a crisis, beware that access to niche sales markets may be decreased due to damage to roads and sales venues, fear of travel, or simple distraction by pressing crisis recovery concerns. This is one downside of the more entrepreneurial market outlets as opposed to formal buyer networks for larger-scale production – being an entrepreneur takes time and resources. In project planning, know that each step in a value chain typically does, in fact, add value. “Middlemen” should not be automatically demonized as taking a share of the farmer’s dollar. Intermediate handlers and distributors can bring convenience and connectivity to growers. So, even when operating small, entrepreneurial vegetable-growing businesses, growers may choose to sell some of their yield direct to end consumers and other portions for a lower price to intermediaries. This type of diversified marketing plan spreads risk and helps ensure success during unstable times.

As with nutrition gains, we cannot assume that increased seed access automatically leads to increased income. Training helps connect the seeds with the desired outcome. Market assessment is especially key (see Box 4).

Vegetables are perishable so training on storage, post-harvest handling, and processing may be key to vegetable seed interventions.

BOX 3

Subjects for Training: Income from Vegetables

Here are relevant training topics to consider:

- **Business planning/pricing**
- **Marketing planning**
- **Cooperative marketing**
- **Salesmanship, especially when accessing unfamiliar customer types**
- **Post-harvest handling for marketing purposes**
- **Recordkeeping**

Four Principles in Designing the Project to the Strengths of Vegetable Growing

1. Design the project for the household scale

Vegetable growing is a humanitarian response strategy that can be managed and supported on the household scale with harvests moving right to the kitchen. Vegetables are readily grown in small, mixed plots, where soil improvement, consistent water access, and protection from livestock and wildlife are more manageable. This production mode is hand-labor intensive. But with the farm or garden in a concentrated space close to home, it's labor that can be integrated with other daily household tasks.

Both conflict and natural disasters can reduce access to large growing areas. When opportunities for large-scale production or production in fields that are some distance from home are disrupted, vegetable growing can offer an alternative. A number of successful interventions have utilized minimal space within internally displaced persons' (IDP) camps for vegetable production.

BOX 4

Market Assessment and Vegetables

Access to markets and a proximity to areas of high demand (cities, towns, roadside markets) helps growers maximize their use of vegetable production as part of the income patchwork. Assessment of markets and providing training on marketing aspects can help.

Market research will teach that scale matters. Enabling a number of farmers to all grow the same vegetable crops out of scale with local demand will crash prices, even where vegetables are scarce and even where demand is high. Seed or voucher distribution programs can be designed to avoid this trap by keeping them in scale, considering both "internal markets" (i.e., consumption) and external markets (sale). On an appropriate scale, diversified vegetable growing can work for each farmer to find niche markets while also eating well.

Market research must support programs that otherwise assume that vegetables will aid in livelihood restoration. For example, in providing vegetable seeds for recovery from the impact of violence in Uganda, Samaritan's Purse found that cabbage and large tomatoes were well-valued on the market, but other locally-common vegetables such as okra, amaranth greens, and eggplant were not (Langford 2014).

Just as farming requires the right tools, so does marketing. A seed system and market assessment may suggest a project design that provides marketing tools along with seeds, vouchers, and/or other materials. For example, one might connect program participants with a supply of trays and shrink wrap to create retail displays with the modernity expected by urban shoppers. Packaging can add sales value that pays for itself, while also protecting vegetables from dust and jostling.

2. Prepare to support quick harvest

Staple crops tend to have a single, longer growing season each year. Crises often feature the loss of a staple crop due to disease, pest, natural disaster, or population displacement caused by unrest.

In these scenarios, vegetable availability may be less impacted because growing seasons are typically shorter. Vegetables can be short-term dietary alternatives to staple crops with some providing equivalent calories per planted area with greater overall nutrition – but with less storage potential. For example, after 2011 floods in Cambodia destroyed a wet-season rice crop, the Japanese relief agency FIDR provided seeds to 7,000 families for convulvulus, amaranth, chinese cabbage, radish, cucumber, pumpkin, wax gourd, and green bean (Sokmom, 2012). This seed set matures to a food crop in 30 to 90 days, all faster than rice matures.

3. Design the project to strengthen, not undermine, existing resilience strategies

With increasing research on resilience in all sectors of humanitarian relief, we now see the importance of preserving informal, social network-based strategies used to spread risk and provide self-insurance against disasters of all kinds.

For vegetable seed such strategies might include:

- planting of many vegetable cultivars/species or many succession plantings of one cultivar;
- maintaining/saving seed from genetically diverse plots instead of breeding uniform cultivars; and/or
- maintaining of local and long distance trade relationships to ensure consistent seed supply.

4. Make the right delivery choice: vouchers and direct distribution

A major impetus for performing seed system assessments is to best understand whether seed is accessible and or available and to select a distribution method that best supports strengthening of local seed systems. Vouchers exemplify a set of market-side strategies (along with loans and direct cash distributions) that are most appropriate when an assessment has determined that seed is available but people cannot access it.

Voucher programs typically gain advantage from the fact that local supply chains for staple crops are already in place and that community-based traders (often women) hold a leading role. For vegetable seed, because trading patterns may be weaker and more external to communities, achieving the same benefit could require a greater up-front investment in organizing and coordinating the flow of goods to make the voucher use feasible.

Direct seed distribution (DSD) for vegetables (whether provided free, by loan, or at partial value) can reach those who are most remote from possible seed fair sites or vendor sales points. Areas of high conflict or where local market infrastructure is non-existent can be one good match. When planting time is urgently upon a crisis-affected population, DSD may be the most expedient route to help.

Whether providing seed or vouchers, you can ease later transition out of the aid paradigm by activating existing social and organizational networks to take part in distribution. Churches, schools, medical clinics, community councils, savings/lending groups, or partnering local NGOs can act as vegetable garden demonstration sites along with distribution points. Seed Program International partners in Haiti and The Gambia ask parents to attend training at their child's school before receiving seed. Practitioners with an in-country presence pre-crisis may have a demonstration farm or garden site which can serve a similar dual distribution/training purpose in a crisis.

All projects, whether using direct seed distribution, vouchers, or cash gifts/loans, face concerns that relief efforts can do harm as well as good. As vegetable seed commerce expands into remote areas, aid should not damage current or future enterprises nor make beneficiaries over-reliant on aid.

Programs which give incentive to use specific vegetable seeds – by offering them repeatedly, for free, or with conditional side-benefit support such as tools or loans – may pull farmers away from their own self-insurance strategies and make them more vulnerable to future crises. They may also limit incentives for traders to stock quality seed and for lasting linkages between farmers and traders to be forged.

BOX 5

Further Tips to Maximize Benefit and Reduce Harm from Seed or Voucher Distribution

- **Distribute (or give vouchers for) small packets at multiple points in time and/or train to encourage succession planting. For vegetables, the shorter harvest time and sensitivity to conditions during germination makes small, repeated plantings a smart choice.**
- **Reduce fraudulent use by avoiding free or cheap distribution of retail packets that show price value in foreign or local currency.**
- **If purchasing seed for distribution or identifying seed fair dealers, consider local sources as possible origins for appropriate seed. Future access to the same source, via local NGOs or dealers, may be part of the eventual exit strategy from crisis relief. For example, Tearfund UK sourced vegetable seed from Bukavu, DR Congo, for crisis relief work in Fizi Territory, about 250km south (Sissons, 2014). Their strategy supported relatively local, rather imported, seed procurement.**

Finally, as a summary, we review the larger challenges in providing vegetable seed that need to steer program planning in Table 2.

TABLE 2
Challenges in Providing Vegetable Seed Aid and Their Strategic Impacts

Factor	Action considerations
Established practices for consuming vegetables and appreciation of their nutritional value are not understood.	Reconsider the relief strategy or ensure that adequate time and resources to deliver nutrition/food preparation training are in place along with seeds and other inputs.
Sales markets for vegetables are weak, poorly understood, and/or impacted by the crisis.	If income is a goal, consider including market research, market development, and sales/marketing training in the strategic mix.
Vegetables are perishable.	Reconsider the relief strategy, consider carefully the seed selections, and/or ensure that adequate time and resources are in place to deliver appropriate storage/processing technology training and materials.
Maximum program impact may not occur in the immediate post-crisis period.	Consider making a multi-year commitment and/or determining exit strategies that activate locally-driven program support and seed supply.

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- Father Aurelio Gazzera, Caritas
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