

# AFTER THE HARVEST

EDWARD J. WEBER

---

## *Making the transition from field to table more certain*

---

Only a small proportion of food is consumed in its unprocessed state. Food is processed to satisfy needs and preferences for specific tastes, to improve food quality, to extract edible components, to preserve perishables for wider and more convenient consumption, to remove undesirable substances, or simply to make the commodity tastier and easier to eat and digest. The appropriateness and efficiency of these food transformation processes have been major concerns of IDRC's agriculture, food and nutrition sciences program.

Postproduction systems include all the activities to which food is subjected in sequence from harvesting until the end product is consumed. Research on postproduction, or postharvest, problems therefore embraces a wide range of technical experience. Technologies must be developed where they are to be applied, and designed in close cooperation with the people who will use them.

It has been estimated that the waste of food and food commodities runs as high as 30 percent in some countries, due to inadequate storage, handling and transport facilities and procedures, as well as through inefficient processing. This is the case particularly for cereals and grain legumes.

Other food commodities such as fish, meat, and vegetables are harvested and sold in a fresh state. Unless they are consumed or quickly processed into more stable forms, they are lost to the food system. Stabilizing these raw materials and/or converting them into more marketable forms with longer shelf life can reduce losses, thus increasing the availability of food. In addition, better processing procedures and products can often reduce human drudgery, improve the convenience and quality of a product, and increase its value to the producer.

On-farm postproduction activities have a great deal to do with postharvest losses. Timely harvesting, threshing, transport, drying, and storage are crucial for avoiding decay, mold, insect infestation, rodent damage, and general quality deterioration.

The new short-season, high-yielding crop varieties have brought new postharvest problems. In the case of rice, farmers are now able to grow two, and sometimes even three, crops where only one crop was grown before. The result is that a much larger quantity of rice must be handled, dried, stored, and processed. But the traditional sun drying is often made more difficult or impossible because harvest times can now occur during rainy periods (see article page 9).

IDRC has actively supported research on on-farm and farmer cooperative drying facilities that are simple, locally manufactured from readily available materials, easy to maintain, and which use local cheap fuels, and are capable of drying other commodities such as vegetables, fruits, legumes, and fish. A number of technical designs have been produced and tested in Asia, Africa, and Latin America. The economics, scale of application, and the management systems in which this equipment will prove functional and efficient are still under study. This is a multidisciplinary problem that cannot be solved by engineers alone. Government pricing policies for locally produced grain that do not provide a

premium for better quality products, and thereby incentives for investment in drying equipment, are another dimension of postproduction problems.

Most food commodities are harvested at a particular time. Consumption takes place continuously, however. Storage is therefore required to maintain a constant supply throughout the year. Storage can be on-farm for subsistence consumption, in large-scale central depots, or at various stages along the way in merchants' and processors' warehouses. IDRC project support has emphasized small-scale storage at the farm and cooperative level, and focused on traditional storage structures.

Both primary and secondary food commodity processing are important aspects of the postproduction system. Primary processing normally renders a raw commodity stable for storage and distribution or changes its form into one suitable for use by either the consumer or food processor — examples are the icing or salting of fish, and the dehulling and milling of grain. A substantial amount of IDRC resources has gone into small-scale mechanization of the dehulling and milling process for grains such as sorghum, millet, and cowpeas in semi-arid areas of Africa and Asia (see article page 5).

Developing countries often lack convenient processed forms of traditional foods. IDRC supports research on their development, but the local testing of these products, and putting in place the promotional and educational programs necessary to ensure their use, requires more research. An important aspect of this problem is the home preparation of nutritious food from local products for children two to five years of age, the group most vulnerable to malnutrition.

Small village-based food processing industries using locally important food commodities are an important link in the food chain. Improvements brought to their management and processing technology would allow for expansion of production, increase markets for farm or fishery products, and provide greater amounts of stable food products. Increased income and employment can also result. Process improvement research of this type forms an important aspect of IDRC's postproduction program. Marketing of products and services is also an integral part of the program's approach.

In future, implementation of research results and the application of existing technologies will be given emphasis in the program. The task is to understand and then serve the interests of potential customers, rather than attempt to make the customer accept what the researcher wants to research or the processor produce. This emphasis on delivery systems for improved technologies ensures that IDRC investment results in direct benefits to underprivileged people.

The following articles examine a few postproduction problems and the research carried out to solve them. They are part of wider efforts under way both to prevent food losses and to make more of the right kind of food available to those who need it most. □

---

*Edward J. Weber is Associate Director, postproduction systems and agricultural economics, of IDRC's Agriculture, Food and Nutrition Sciences Division, Ottawa.*