

## EarthTrends: Featured Topic

Title: **Disappearing Food: How Big are Postharvest Losses?**

Author(s): Staff of World Resources Program

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Farmers and food sellers have been concerned about losses since agriculture began. Yet the problem of how much food is lost after harvest to processing, spoilage, insects and rodents, or to other factors takes on greater importance as world food demand grows.

Cutting postharvest losses could, presumably, add a sizable quantity to the global food supply, thus reducing the need to intensify production in the future.

Yet exactly how much of the world harvest is really lost? Surprisingly little solid information exists on the precise amount and nature of loss. This is partly because losses vary greatly by crop, by country, and by climatic region, and partly because there is no universally applied method of measuring losses (Mazaud 1997). As a consequence, estimates of total postharvest food loss are controversial and range widely—generally from about 10 percent to as high as 40 percent (Satin 1997; FAO 1997).

Just how much of that loss can be prevented, and by what degree of effort and expense, is not known. Nor is there clear evidence that if losses were

reduced, the food thus rescued would find its way onto the plates of those who need it most.

Nonetheless, there is little doubt that the problem of food loss is locally significant, especially where it concerns

Lost Bounty	
Figure 1: Estimated Postharvest Rice Losses in Southeast Asia, 1997	
ACTIVITY	ESTIMATED RANGE OF LOSS (PERCENT)
Harvest	1-3
Handling	2-7
Threshing	2-6
Drying	1-5
Storage	2-6
Transport	2-10
<b>Total</b>	<b>10-37</b>

Source: FAO, 1997

staple crops. Rice is a good example. A study by the International Rice Research Institute (IRRI) in the Philippines has estimated that from 5 to 16 percent of rice is lost in the harvest process, which includes cutting, handling, threshing, and cleaning. During the postharvest period, another 5 to 21 percent disappears in drying, storage, milling, and processing. Total estimated losses, not counting later losses by retailers and consumers, run from 10 to 37 percent of all

rice grown (De Padua 1978). The Food and Agriculture Organization of the United Nations reports similar estimates of rice loss in Southeast Asia (FAO 1997). (See Figure 1.)

Other recent scientific surveys place rice losses in China at 5 to 23 percent (not counting processing) (Yong and Algader 1997), and in Vietnam at 10 to 25 percent under typical conditions and 40 to 80 percent under more extreme conditions (Phan and Nguyen 1995).

Although these figures are already high, they do not tell the whole story. Food losses, according to those who study them, cannot be reckoned solely in terms of physical losses. There is a natural inclination to focus on how many hungry people a ton of lost maize or potatoes would feed, but qualitative factors are important, too.

Consumers' demand for cosmetically perfect produce often means that much of the food successfully harvested is wasted. One agricultural researcher notes that the importance of such qualitative factors is growing, and foods that might have been acceptable before may become "lost" now because they do not meet the market's higher

standards for acceptability (Bell 1997). The demand for perfect produce is especially common in the more affluent world. A tiny mark made by a bee early in the life of a pear can disqualify the end product for consumer consideration. A recent review of food waste in the United States reported that some 43 billion kilograms of food, or 27 percent of the food available for people to consume in the United States, were lost in only three stages of the marketing process—retailing, food service, and consumers. The total did not include losses elsewhere in the food harvesting and distribution system (Kantor et al. 1997).

Whatever the source, postharvest losses represent more than just a loss of food. When 20 percent of a harvest is lost, the actual crop loss is just part of the problem. Also wasted is 20 percent of all the factors that contributed to producing the crop—20 percent of the land used to grow the food and 20 percent of the water used to irrigate it, along with the human labor,

seeds, fertilizer, and everything else. In other words, postharvest food loss translates not just into human hunger and financial loss to farmers but into tremendous environmental waste as well.

Addressing the problem of postharvest losses is complicated because losses occur in so many different ways; yet some recent efforts have shown promise. For example, a number of strategies have targeted losses during food storage, especially directly after harvest when foods' internal moisture is being reduced and they are prone to attack by insects and other pathogens. In one experiment in Benin, hermetically sealing storage containers of beans and soybeans asphyxiated insect larvae that had infested the beans, cutting losses substantially. Also in Benin, yam losses fell significantly when the tubers were stored in elevated structures that maintained an ideal humidity level (Grolleaud 1997:49-52).

Engineers at IRRI reduced rat damage to rice by rigging a

simple plastic fence around paddies, with a hole every 5 meters leading to a trap. A rat, smelling rice, swims along the fence until it finds the hole—and the trap.

Experts believe farmers could cut losses by altering production methods, such as moving from hand gleaning to mechanical harvesting. As with all agricultural decisions, however, the cost of an improvement is a deciding factor in its adoption. IRRI estimates the cost of its rat-catching system at US\$400 per hectare, and it lasts just a few seasons. This can equal one third or more of the value of a rice crop, and may be too much for a farmer to pay (Quick 1993).

Governmental policies, too, are important to minimizing losses, especially where commodity crops like rice and corn are concerned. According to agronomists, policies that promote a stable, sufficient supply of these crops in an open, competitive marketplace stimulate food producers to be more efficient and quality conscious (De Padua 1997).

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