

Post-harvest losses in maize crops in India

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Introduction:

Post-harvest losses refer to the deterioration or loss of agricultural produce that occurs between the time of harvest and the moment of consumption or processing. These losses can occur due to various factors, including inadequate storage facilities, inefficient transportation systems, poor handling practices, pests and diseases, and unfavorable environmental conditions.

Post-harvest losses have significant economic, social, and environmental implications. Economically, they lead to reduced incomes for farmers and increased prices for consumers. Socially, they can contribute to food insecurity and malnutrition, particularly in developing countries where agriculture is a vital source of livelihood. Environmentally, post-harvest losses result in the wastage of resources such as water, energy, and land that were used to produce the lost food.

Reducing post-harvest losses is crucial for achieving food security, improving farmer livelihoods, and promoting sustainable agriculture. Governments, organizations, and

individuals need to collaborate and invest in implementing these strategies to minimize food waste and ensure a more sustainable and resilient food system.

Postharvest loss includes the food loss across the food supply chain from harvesting of crop until its consumption. Maize being a prominent crop is not left untouched by the losses it incurs after harvesting these losses, in maize crops, in India can occur due to various factors, including improper storage, inadequate processing, pests, and fungal infections. Here are some chief post-harvest losses in maize crop in India:

Storage Losses: Improper storage conditions can lead to significant losses in maize crops. Maize is prone to damage from moisture, insects, rodents, and molds. Inadequate storage facilities, such as improper ventilation, high humidity, and lack of pest control measures, can result in spoilage, mold growth, and insect infestations, leading to significant grain losses.

Insect Infestation: Insects, particularly maize weevils (*Sitophilus zeamais*), can cause

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substantial post-harvest losses in maize. These pests can attack stored maize grains, resulting in reduced grain quality, weight loss, and contamination. Maize weevils can penetrate the grain and reproduce, leading to rapid population growth and increased damage if not controlled.

Fungal Infections: Fungal infections, such as *Aspergillus* and *Fusarium* species, are common post-harvest pathogens in maize. These fungi produce toxins, such as aflatoxins and fumonisins, which are harmful to human and animal health. Improper drying and storage conditions can promote fungal growth and mycotoxin contamination, rendering the maize unfit for consumption and reducing its market value.

Improper Processing: Inadequate processing practices can contribute to post-harvest losses in maize crops. Improper husking, drying, milling, or handling techniques can result in physical damage to the grains, reducing their market value and overall quality. Inefficient processing may also lead to wastage of maize by-products, such as cobs and stalks, which have potential value for animal feed or other applications.

Lack of Infrastructure and Facilities: Limited access to proper storage facilities, including warehouses, silos, and drying facilities, can contribute to post-harvest losses. Inadequate infrastructure and lack of post-

harvest management facilities make it challenging for farmers to store and protect their harvested maize crops effectively.

To reduce post-harvest losses in maize crops in India, several measures can be taken, including:

- Adoption of proper storage practices, such as using airtight containers, hermetic storage, or grain bags, to protect maize grains from moisture, pests, and molds.
- Implementation of pest management strategies, including the use of insecticides, fumigation, or biological control methods, to prevent insect infestations and damage.
- Improved drying techniques to reduce moisture content in maize grains before storage, thereby minimizing fungal growth and mycotoxin contamination.
- Promoting awareness and training programs for farmers on post-harvest management practices, including proper handling, processing, and storage techniques.
- Investment in infrastructure development, including the establishment of adequate storage facilities and drying systems at the farm and community levels.
- Encouraging the adoption of improved maize hybrids or varieties with enhanced post-harvest characteristics, such as

resistance to pests, diseases, and fungal infections.

Reducing post-harvest losses is crucial for achieving food security, improving farmer livelihoods, and promoting sustainable agriculture. Governments, organizations, and individuals need to collaborate and invest in implementing appropriate interventions, it is possible to minimize grain losses, enhance food security, and improve the economic viability of maize farming in India.

