



# Food Losses/Waste in Food Value Chains – Areas of Concern and Possible Solutions

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## World Food Demand & Food Security

- Projected world's population of [9.6 billion by 2050](#) means more food production.
- The [challenge for governments](#) is how to have enough food for everyone.
- Food security means physical and economic access to sufficient, safe and nutritious food that meets dietary needs and food preferences for healthy life.
- However, [according to the United Nations](#), countries will do better by not wasting but not necessarily producing more.
- Each year, 30% of all food produced for human consumption in the world (around 1.3 billion tonnes) is lost or wasted (FAO).
- This includes 45% of all fruit and vegetables, 35% of fish and seafood, 30% of cereals, 20% of dairy products and 20% of meat.

## So what is Food Loss and Waste

- **Food loss and food waste** refer to the decrease of food (for human consumption) in subsequent stages of the food supply chain.
- **Food waste** or **food loss** is therefore **food** that is discarded or lost uneaten.
- Causes of **food waste** or loss are numerous, and indeed occur at different stages of production, transportation, storage, processing, retailing and consumption.

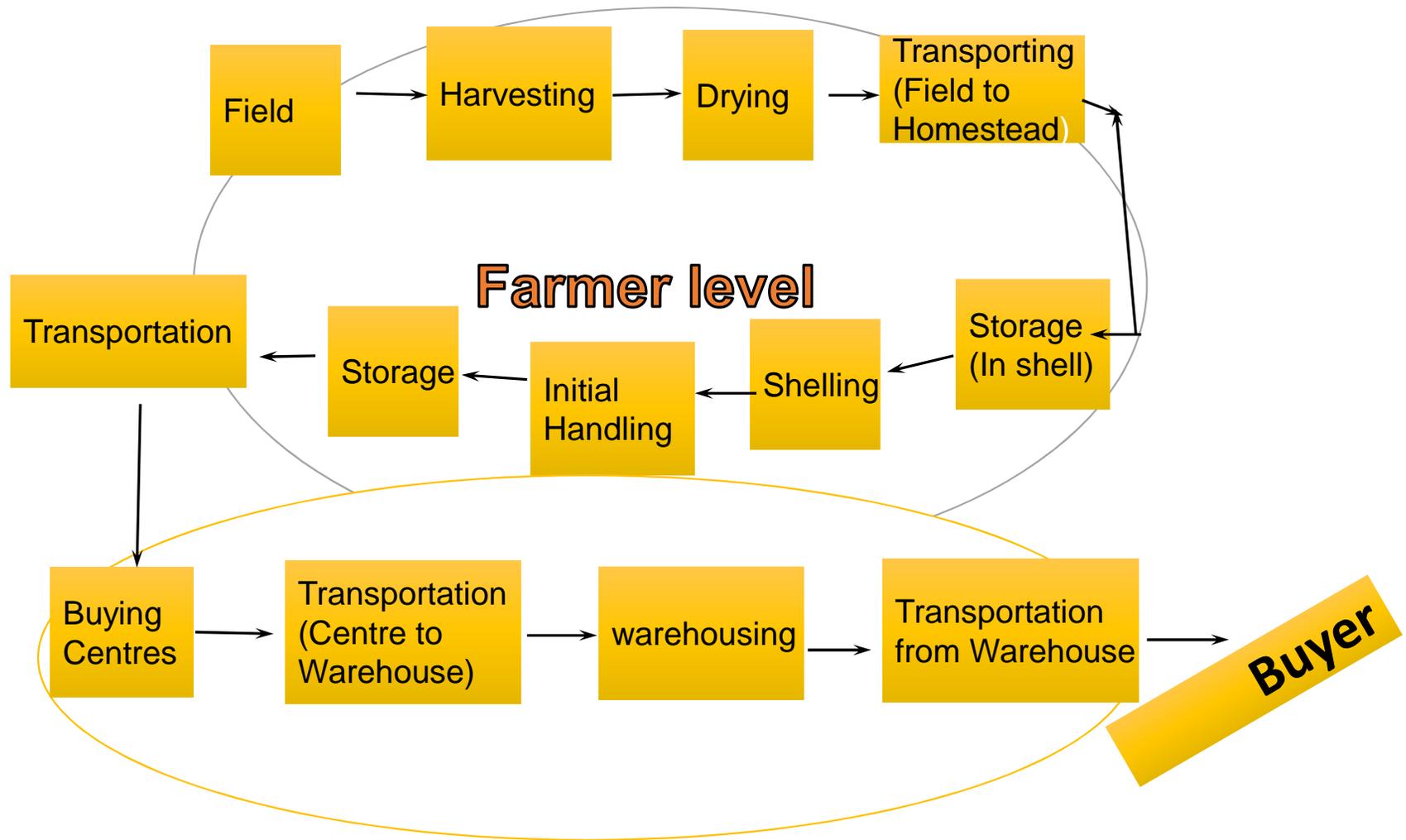
# Food Loss Classified

**Quantitative food loss** : the decrease in mass of food.

**Qualitative food loss:** the decrease of quality attributes resulting in the reduction of nutritional value and economic value and consumers' appreciation:

- Nutritional value - macro and micro nutrients such as proteins (including essential amino acids), fats (including essential fatty acids), carbohydrates (including dietary fibers).
- Economic - the price that any supplier in the Food Supply Chain (FSC) receives from its buyer, in a way that it affects the revenue of the supplier.

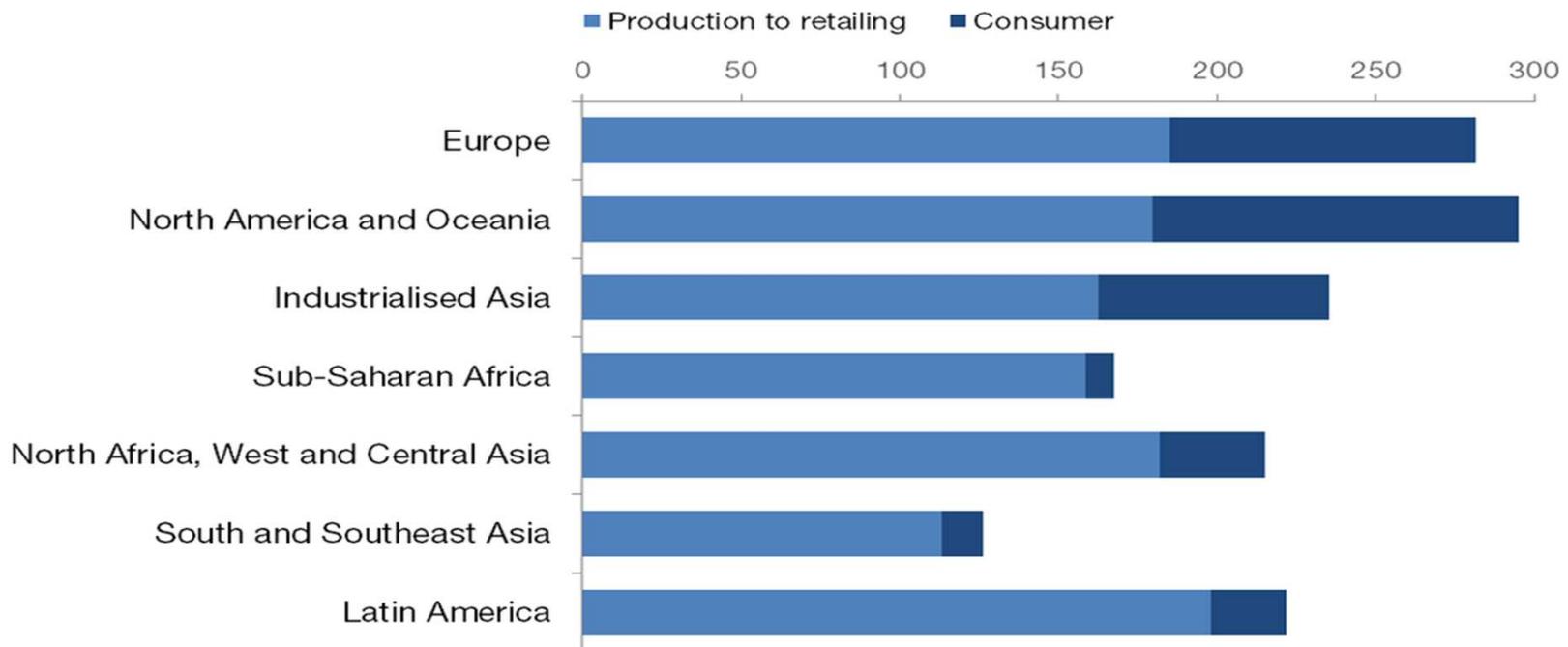
# Possible points of Loss for Most Arable Food crops



# Per Capita Food loss and Waste, at Consumption and Pre-consumption stages, in different regions around the world

## Which regions waste the most food?

Per capita food losses and waste, kg/year

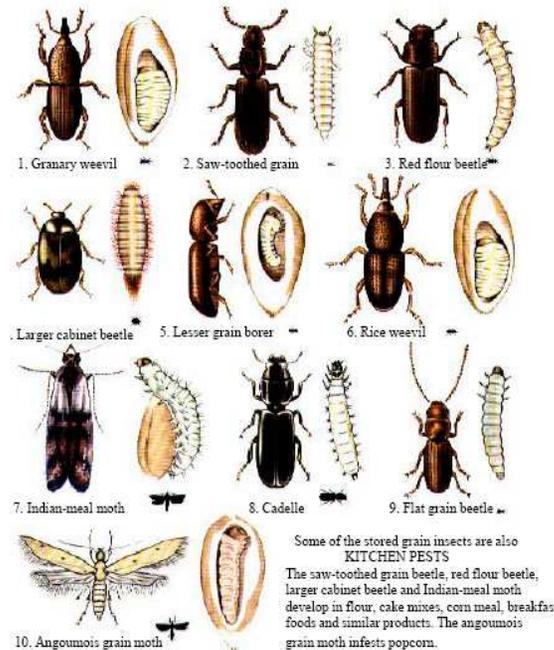


Source: The Food and Agriculture Organization of the United Nations (FAO)

## Post Farm Level Loss - a big Challenge in Developing Countries

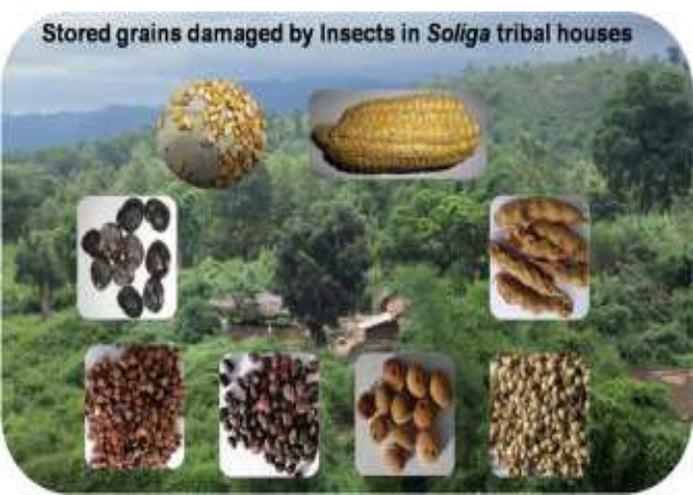
- Farm-level food waste is compounded by losses of food from pest and disease invasion, poor storage, handling, transportation and lack of refrigeration.
- Food that is perfectly fit for human consumption ends up unsold as a result of the actions taken by those further up the supply chain – brokers, exporters, importers, retailers, and consumers.
- USDA [estimates](#) that food lost in restaurants, institutional dining operations, and people's homes totals 19% of total U.S. retail-level food supply,
  - as food is prepared but not served,
  - left to spoil in kitchens and,
  - served in excessively large portions.

# Possible Loss and Wastage reasons e.g. Pests and Diseases



Some of the stored grain insects are also KITCHEN PESTS. The saw-toothed grain beetle, red flour beetle, larger cabinet beetle and Indian-meal moth develop in flour, cake mixes, corn meal, breakfast foods and similar products. The angoumois grain moth infests popcorn.

Prepared by extension entomologists of the North Central States in cooperation with the federal extension service, U.S. Department of Agriculture



## Aflatoxins in Groundnut

- Aflatoxins are produced by *A. flavus* / *A. parasiticus*
- Grows over a wide range of temperature (between 10-40°C)
- Thrives at high relative humidity and kernel moisture content (10 to 30%)






# Solutions Exist for Control of Loss

## Some Examples

- Chemical
- Biological
- Physical
- Hermitic



Unfortunately most smallholders are not able to access Improved storage structures due to;

- Subsistence farming cf Farming as business
- No collective action and aggregation
- Poor access to Extension and Advisory Services.



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## Possible Wastage Reasons e.g. Grading stage



# Expanding Food Production is necessary but has consequences

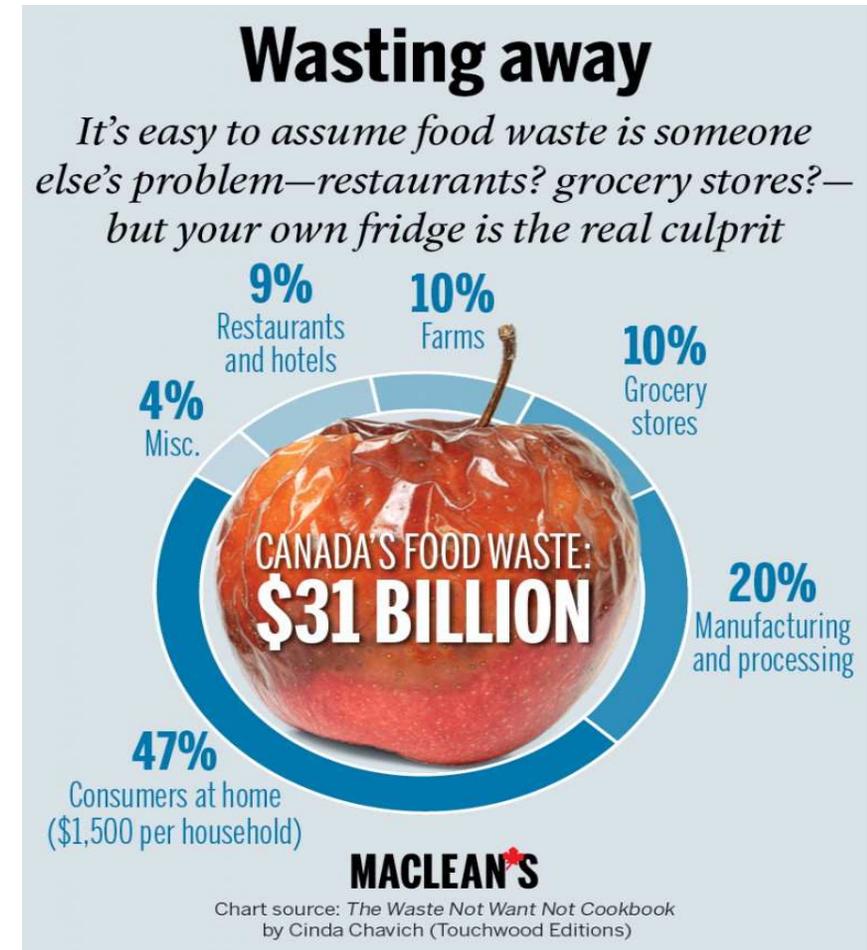
- Better manage well food produced than expand production
- Main method by which food production is increased is by increasing the amount of land under cultivation. While per acre productivity yields did significantly increase during the second half of the 20th century, this rate of growth has now [slowed](#), with increases of only about 1% per year.
- Emissions modelling suggests that agriculture-related emissions [alone will take up almost 100%](#) of the world's carbon budget by 2050 (i.e. agricultural emissions alone trigger a 2°C global temperature increase).
- Meat and dairy production are especially carbon intensive, making [livestock farming a key](#) component of total agricultural emissions, pointing again towards the importance of diet and consumption mix as well as reducing food waste.
- [12](#) to [20%](#) of current CO<sub>2</sub> emissions are from deforestation, and up to 30% of historical CO<sub>2</sub> emissions [are from deforestation and land use change](#). Deforestation's heavy carbon footprint contributes to agriculture's [responsibility for 30-35%](#) of global Green House Gas emissions (GHG). Deforestation also has [dangerous ramifications](#) for biodiversity loss.

## Why deal with Food Loss and Waste?

- **The economic perspective:** production costs of food products could fall by reducing or reusing wastage.
  - Wastage represents a wasted investment that can reduce farmers' and businesses' incomes and increase consumers' expenses.
- **Natural resources/Environmental perspective:** reducing wastage can reduce the claim on natural resources (land, water, energy) that are used in producing the food.
  - This perspective can also be focused on the reduced emission of GHG as a result of reduced wastage of food.
- **Ethical and social perspective:** reducing wastage can increase food security of people in need of food.

## Food Waste Levels

- Food loss and waste costs the world about \$940 billion a year!
- A high percentage of Food Loss is at individual level – 47%
  - Food discarded before use – Sell-by date
  - Food discarded during preparation
  - Food discarded after eating.



## How to deal with Food Losses/Waste

- **Awareness** raising on the impact of, and solutions for food loss and waste.
- **Training / capacity building**, to add on social capital, especially for traders, processors, wholesalers, retailers.
  - Strengthen the supply chains downstream (post-farm).
- **Collaboration and coordination** of world-wide initiatives on food loss and waste reduction.
- **Policy, strategy and programme development** for food loss and waste reduction.
- **Support to investment programmes and projects** implemented by private and public sectors.
- **Increased investments in rural infrastructure:** all-weather roads and electricity.

## Conclusion

- Tackling post-harvest loss in developing countries is not rocket science, writes Ertharin Cousin (Executive Director - World Food Programme)
- Reducing the wastage, than expanding production, should be a priority.
  - *“Everybody ate and was satisfied. Afterwards they collected twelve baskets full of the pieces which were left over.” Matthew 14:20*
- Reducing the wastage issue cannot be solved in a single stroke.
- Reducing waste needs multi sector involvement.
- Interventions do not make a significant contribution on their own, but can do so when embedded in a broader and integrated value chain or food system approach with an eye on context specific circumstances.



National Smallholder Farmers' Association of Malawi

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**Thank You!**

