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Food Wastage – How Can Chilling Help to Reduce Food Waste?

About one-third of all food produced globally worth USD 1.2 trillion is lost or wasted yearly. By 2030, it is estimated that food loss and waste will hit 2.1 billion tons worth of USD 1.5 trillion and the volume of food loss and waste will rise to 1.9% annually from 2015 to 2030. Food loss and waste are projected to increase with a significant spike in Asia particularly, and in most regions around the world (Hegnsholt et al., 2018). Food wastage is concentrated in the industrialised countries, where more than 40% of the food losses and waste occur at retail and consumer levels and private households (Barrera & Hertel, 2020).

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Over 40.6% of fruits and vegetables are wasted during the production and harvesting stages due to improper storage and handling of fresh products that lead to spoilage. By 2025, dairy products are estimated to reach USD 8.98 billion on account of increasing product wastage due to lack of cold storage or infrastructure and transportation of the products. Furthermore, the growth of the segment is attributed to improper processing and unhygienic storage of products at an inappropriate temperature (Grand View Research, 2019).

By lowering the temperature storage of foods from 7°C to 4°C, USD 162.9 million of food waste could be saved annually (Grinstead, 2017 & Brown et al., 2014). At a lower temperature, the shelf life of foods can be extended. For example, the storing of milk, ready-to-eat meals and sandwich spreads at 4 °C will extend their shelf lives by up to several weeks instead of storing them at 8 °C. This will lengthen the product's usage and help to avoid food waste (Lindberg & Jensen, 2014).

In a cold chain, lower temperature allows food producers to extend the products' expiry date and shelf lives. This could reduce the in-store waste of foods having a date indication (Lindberg & Jensen, 2014). Every part of storage and transportation in a cold supply chain is temperature-controlled to stop products from decaying. Keeping foods at a constant temperature will slow down the growth of bacteria which can delay the decaying process (Milenovic, 2020).

In a nutshell, food spoilage such as grossy, watery or shrinkage can be prevented by storing them at a chilled temperature as it maintains the foods' freshness and quality which in turn can reduce food wastage (Chabada et al., 2014). Controlling respiration of fruits and vegetables with optimum chilled temperature can inhibit the physiological injury and increase life storage, preventing them from becoming rotten or damaged (Tan, 2016; Khan et al, 2017).

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