



GLOBAL VARIATIONS IN MICRO-NUTRIENT LOSSES IN THE FRUIT AND VEGETABLES SUPPLY CHAIN

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Introduction

FAO estimated that one-third of annual world's food production for human consumption is lost or wasted in food supply chain. Significant amount of nutrients and bioactive ingredients are also lost as a consequence. Yet, 795 million people are chronically undernourished and over two billion people are micronutrient deficient worldwide.



Objectives

To investigate losses of vitamins A and C associated with fruit and vegetables losses along the food supply chains in seven regions [Europe; North America and Oceania (NAO); Industrialized Asia (IA); Sub-Saharan Africa (SSA); North Africa, West & Central Asia (NAWCA); South & Southeast Asia (SSEA); and Latin America (LA)] of the world during 2009.

Results

- IA had the highest per capita vitamins A and C in FLW in fruit and vegetables (vitamin A: 784 RE/day and vitamin C: 90 mg/day), the lowest were found in SSA (vitamin A: 135 RE/day; vitamin C: 26 mg/day) [FIG.1 and FIG.2].
- Globally, harvest, post-harvest and consumption accounted for the majority of vitamins FLW along the food supply chains, processing accounted for the lowest FLW.
- Agricultural production in IA and NAO had the highest vitamins A and C FLW respectively (Vitamin A: 228 RE/d; vitamin C 33mg/d).
- IA was also the lead region globally with the highest vitamin A FLW among fruits and vegetables across the food supply chain apart from processing.
- For vitamins A and C waste in fruit and vegetables at consumer end, IA produced the highest waste, while the lowest was in SSA [FIG.3 and FIG.4].

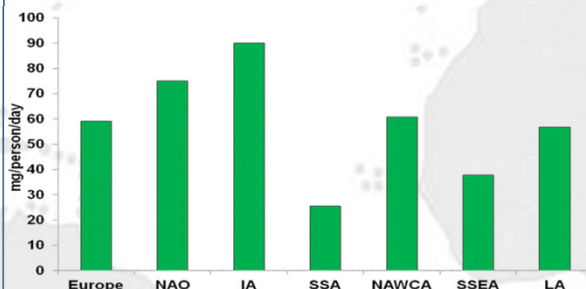


FIG. 1 Total per capita losses and waste of vitamin C (mg/day) from fruit and vegetables across the 7 FAO regions

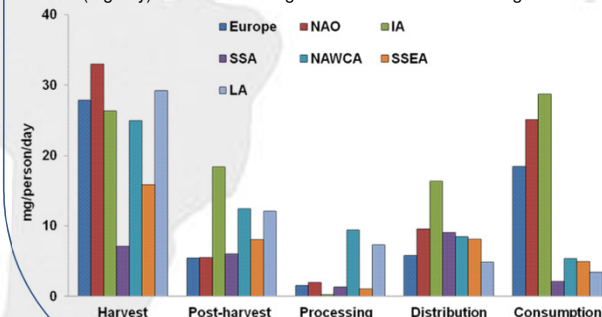


FIG. 3 Vitamin C (mg/day) in fruit and vegetables losses and waste from the food supply chain across the 7 FAO regions

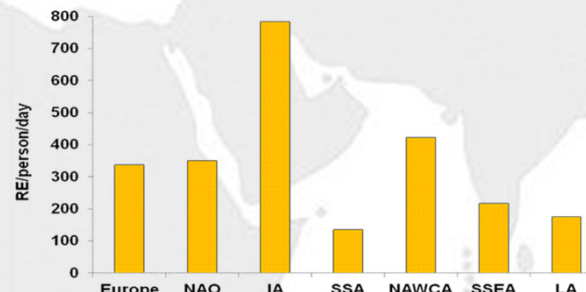


FIG. 2 Total per capita losses and waste of vitamin A (RE/day) from fruit and vegetables in the 7 FAO regions

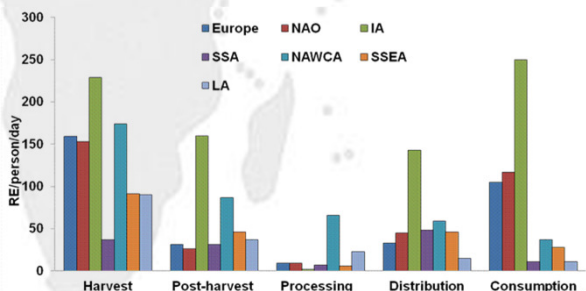


FIG. 4 Vitamin A content (RE/day) in fruit and vegetables losses and waste from the food supply chain across the 7 FAO regions

References:

- ¹Gustavsson J. et al. Global food losses and food waste – Extent, causes and prevention. FAO, Rome, 2011. <http://www.fao.org/docrep/014/mb060e/mb060e.pdf>
- ²FAOSTAT. FAO, Rome. http://faostat3.fao.org/browse/FB/*/*
- ³USDA. National nutrient database for standard reference, release 23. Beltsville, MD: 2011. Agricultural research service.

Methods

Global Food Losses and Food Waste Report¹ and FAOSTAT's food balance sheets² were used to estimate volumes of FLW in 7 world regions. Vitamins A and C contents in fruits and vegetables were determined using the USDA³ National Nutrient Database.

Conclusions

Reduction in FLW could potentially avail more nutrients and phytochemicals for human consumption, contributing to the alleviation of micro-nutrient deficiencies and non-communicable diseases in vulnerable populations. Regions having the highest nutrient losses in FLW warrant further investigations to formulate better policies and strategies to revert the trend. Methodologies in collecting FLW data and estimating nutrient losses have significant limitations and need to be improved.