

CoP on food loss reduction online Forum

Discussion on: Linkages between Food Loss and Waste (FLW) and Nutrition

Report (September 2017- March 2018)

[EN] This consultation on linkages between food loss and waste (FLW) and nutrition is aimed at better understanding these links through sharing more information and helpful experiences on how and if FLW reduction affects people's nutritional status, and how reduced FLW and related micronutrient losses lead to improving food security and human nutrition. [FR] Cette consultation sur les liens entre les pertes et le gaspillage alimentaires et la nutrition a pour but de mieux comprendre ces liens à travers un échange de plus d'informations et d'expériences utiles afin d'évaluer si, et de quelle manière, la réduction des pertes et du gaspillage alimentaires a des répercussions sur l'état nutritionnel des personnes et les façons dont cette même réduction et les pertes en micronutriments y associés sont susceptibles d'améliorer la sécurité alimentaire et la nutrition humaine. [ES] El objetivo de esta consulta sobre la relación entre pérdida y desperdicio de alimentos (PDA) y nutrición es lograr entender mejor dicha relación a través del intercambio de información y de experiencias positivas sobre cómo y si la reducción de las pérdidas y el desperdicio de alimentos afecta al estado nutricional de las personas, y cómo una reducción de la PDA y sus micronutrientes relacionados conlleva una mejora de la seguridad alimentaria y la nutrición humana.

20/9/2017 Welcome and first question by Liu Bin

Welcome to the discussion on the linkages between food loss and waste (FLW) and nutrition. My name is Bin Liu and I work at FAO as a Nutrition and Food Systems Officer. On behalf of the discussion coordinating team, we greatly appreciate your contribution to this interesting and important topic. The form of the discussion is that each week we will post a question for which we sincerely request your responses, opinions and comments.

Our first question is about people's general perceptions and attitudes on the linkages between FLW and nutrition:

Based on your experience, do you consider that there is a link between FLW and nutrition? It would be great if you could briefly introduce your work area and provide some elaboration, such as the reason why you think or do not think such a link exists, what do you think the link might be, etc.?

Thank you so much for your participation and we look forward to a fruitful discussion. Should you want to contact the coordinators directly, please write to me (bin.liu@fao.org) or Ms. Giorgia Paratore (Giorgia.Paratore@fao.org).

Dear All,

I work in the nutrition assessment and scientific advice team at FAO. I worked in a recent and ongoing project (please visit the following [link](#) to have a better background) on “Evaluation of Micronutrient Losses from Postharvest Food Losses (PHL) in Kenya, Cameroon and India – Implications on Micronutrient Deficiencies in Children Under Five Years of Age” aimed to explore the link between PHL and micronutrient losses.

Until recently, there has been a lack of data on nutrient losses along with FLW to better understand the scale and causes of the FLW problem at global and country level.

The above study demonstrates that reduced PHL could increase availability of micronutrients, which in turn could contribute to better nutrition. The large scale of micronutrient losses in PHL in the countries highlights the importance of taking into consideration human nutrition in future PHL interventions.

I do believe that there are potential linkages between FLW and Nutrition. For instance, FLW can occur in malfunctioned food systems ranging from harvest and post-harvest stages through to the consumer end along a food supply chain (FSC) ([here a recent study showing the effect of improved PHL procedures](#)).

Currently, the greatest losses come from perishables such as fruits and vegetables ([where FLW are reported to be as high as 50%](#)) which are rich sources of nutrients, especially micronutrients. These nutrients are essential for optimal growth and development of young children, and fruits and vegetables form an integral part of the healthy diets for all. Given these recent findings, it is worthwhile to explore the potential ways to mainstream human nutrition into future FLW interventions.

Giorgia Paratore, nutrition consultant at FAO

Dear CoP members,

one of the issues related to post-harvest losses in the grain value chains is aflatoxin. Aflatoxin-producing molds affect grain and other food crops—maize and groundnuts in particular. I would like to flag to your attention on a policy brief summarizing what is known about the relationship between aflatoxins and childhood stunting produced by the Partnership for Aflatoxin Control in Africa (PACA). The document is available in several languages: [English](#), [French](#), [Portuguese](#), [Arabic](#).

I wish this will be useful for enhancing the discussion.

Please feel free to leave your comment(s) also in French or Spanish language.

With kind regards,

Francesca Gianfelici, CoP coordinator (30/10/2017)

Dear all,

I also work in the nutrition division of FAO and have been involved in the work on exploring the linkages between post harvest losses and micronutrient losses. One of the concerns that I have is that studies that I know of only investigate the quantitative loss of micronutrients in food lost and wasted in terms of what is discarded by weight, and compare them to the nutrient values of the food in question in a food composition table. This is the case for the study FAO conducted and also a recently published study in the [Journal of the Academy of Nutrition and Dietetics](#).

But in terms of qualitative losses (when nutrient content is reduced when quality of the food is lowered, for example due to improper storage, but the food is still sold and consumed), I find that measures are very subjective (e.g. by sight) and can be better developed.

Does anyone know of any studies that have a clear methodology measuring qualitative FLW, at different stages of the supply chain, or qualitative nutrient losses in food losses and waste by laboratory work or otherwise?

Look forward to hearing your insights.

Tung, JiYenAlexandra, ESN/FAO

Dear all,

I am working for AGRIDEA in Switzerland as scientific collaborator in the group "Markets & International Cooperation". We have recently investigated the link between postharvest management and nutrition. The results of the web survey fed in an article for the Swiss Agency for Development and Cooperation's network on Agriculture and Food Security.

Yes, we noticed that there's a need for more solid data on the effectiveness of different postharvest technologies on the nutritional value of food.

Here are some links between FLW and nutrition:

- losses of nutritive foods, like vegetables, fruits or pulses, cause direct losses of nutrients
- postharvest losses of any product, in quantity or quality, imply less means for the family to buy nutritious food
- food safety can be severely altered with improper postharvest management, especially in situations with mycotoxin problems.

Current studies mostly emphasize on the quantity of PHL, their economic value or effective technologies. Consequently, some estimations can be made on the second link. Regarding mycotoxin and aflatoxin, evidence is also increasing. But information on the loss of nutrients in the postharvest stage, studies are still rare.

At the 1st All Africa Postharvest Congress and Exhibition in March 2017 in Nairobi, some interesting scientific works were presented, such as:

- Gogo et al. analysed the postharvest losses of African leafy vegetables, especially for the African night-shade (*Solanum* sp.) in Kenya. They evaluated the dry matter, macro-nutrients (N, P, K, Ca and Mg), micro-nutrients (Fe and Zn), protein, carotenoids and chlorophyll content of leafy vegetables.
- In Kenya, Mbondo et al. studied the effects of different drying techniques (solar, oven, vacuum and freeze) on Beta-carotene, antioxidant capacities and phenolic in African eggplants.
- Chepngeno et al. tested the combinational effects of hydrocooling, sanitizer application (CaCl₂) and cold storage on Vitamin C, in Eastern Africa.
- Galani et al. investigated the effect of storage temperature on Vitamin C, total phenolics, phenolic acids profile and antioxidant capacity of eleven potato (*Solanum Tuberosum* L.) varieties in India.

As these studies were presented as conference contributions, as to our current knowledge, they are not yet publicised in final versions.

In our short article we made a few suggestions for more nutrition sensitive postharvest programmes. This would be another question I could come to it if the issue is raised later in the CoP discussion.

With kind regards, Thierry Pleines

AGRIDEA

Dear colleagues,

please have a look at the following article published in the Medical News Bulletin, which may be of interest for your work: [[url=https://www.medicalnewsbulletin.com/nutrient-loss-associated-food-waste/](https://www.medicalnewsbulletin.com/nutrient-loss-associated-food-waste/)]Nutrient Loss Associated With Food Waste[/[url](https://www.medicalnewsbulletin.com/nutrient-loss-associated-food-waste/)]. It explains that researchers sought to estimate the magnitude of nutrient loss due to food waste in the US food supply and quantified substantial caloric losses, fiber losses, and micronutrient losses in the US.

Kind regards,

Francesca

Dear All

I also work on the linkage between reduction food losses and waste (FLW) and improved nutrition at the Nutrition and Food Systems Division at FAO Headquarters. Given the astronomical volume of foods lost to either post-harvest losses (PHL) or food waste in the food systems across many countries in the world, resulting in losses of food and its essential nutrients which should have been available to feed the world's 800 million hungry people and 2 billion people who suffer from macro- and micro-nutrient deficiencies. Farmers also lose incomes as a result of food losses and waste (FLW).

Apart from developing methodology for countries to assess the scale of FLW - in-country awareness raising on the PHL problem, we have started to support countries with nutrition-sensitive interventions to reduce FLW in order to avail more nutritious food to feed people, thereby farmers can also generate more income to buy more nutritious foods to feed their families and to improve living standards. We envisage to realise the SDG-2 (by achieving food security and better nutrition while promoting sustainable agriculture) and SDG-1 (reducing poverty) through the reduction of FLW (SDG12.3). It would be grateful if you have any experiences, tools and/or lesson learned in this area of work that can be shared with us. You are particularly welcome to join force with us to improve nutrition and reduce poverty of people through a sustainable and efficient food systems approach to reduce FLW.

Warren T K Lee, Senior Nutrition Officer, FAO.

23/10/2017 Second question by Liu Bin

In the second question, we would like to seek real-world examples on the impacts of FLW on human nutrition:

*Are there examples that food loss affects (or does not affect) people's nutritional status?
Through what impacting pathways? What about food waste?*

Thank you so much for your contribution.

Bin

Dear colleagues,

in relation to this question, I am sharing the following [paper](#). This study is based on the wasted seafood in the United States. The 2010 Dietary Guidelines for Americans recommends citizens to double their intake to improve the health of their diets, based on the recent data collected on the average level of seafood consumption in U.S. Furthermore, "this study finds that 40–47% of the U.S. seafood supply is lost"; Assuming that the nutrient content of seafood is lost along with the wasted seafood, they detail the high nutritional implications of these losses. The methodology is very close to the one that we used in our recent study already mentioned in the first question ('Evaluation of Micronutrient Losses from Postharvest Food Losses (PHL) in Kenya, Cameroon and India – Implications on Micronutrient Deficiencies in Children Under Five Years of Age').

However, even if the reduction in PHL in food systems as a means to avail more food & nutrients for human consumption has not attracted much attention, recently more studies have moved on this new direction. Here available another [source](#) .

Hope to receive your feedback and useful experiences. Thanks a lot.

Giorgia Paratore, Nutrition Consultant.

16/3/2018 Third question FLW and Nutrition Giorgia Paratore

Dear CoP members,

It is time to refresh our interest on the link between FLW and Nutrition.

This is a great opportunity to exchange information and enrich our knowledge in this regard.

If you are (or you have been) involved in innovative studies in this area of work, please read below one of the new questions that we would like to investigate further, and share with us your experiences.

How could the saved food be utilized to improve people's nutritional status?

How would reduction of FLW and related micronutrient losses lead to improvement in food and nutrition security?

Thanks a lot for your time, and looking forward for a fruitful discussion.

Kind Regards, Giorgia Paratore, nutrition consultant, FAO