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ONE TWO WE: AN LCM PROGRAMME FOR ENVIRONMENTALLY FRIENDLY CANTEEN MEALS

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ABSTRACT

The environmental impacts of all food purchases of the Swiss canteen operator SV Group were analysed within an LCA study. Improvement potentials were identified, which include measures in the canteen operation (e.g. reduction of food waste), measures in the supply chain (e.g. a reduction of vegetables grown in heated greenhouses) and dietary measures such as a reduction of the average amount of meat per meal. The results have been used to initiate the programme ”ONE TWO WE” together with the WWF Switzerland. It assists the customers (companies who commission the SV Group with the operation of canteens in their premises) to reach improved levels of environmental performance e.g. a 20% cut on GHG emissions in the supply chain.

INTRODUCTION

Nutrition accounts for 30 % of environmental impacts caused due to the final consumption of Swiss households. It is the most important consumption sector from an environmental point of view with high reduction potentials (Jungbluth, Flury, & Doublet, 2013; Jungbluth, Nathani, Stucki, & Leuenberger, 2011). This was the starting point for the collaboration between the LCA consultancy ESU-services Ltd., the canteen operator SV Group and the WWF in Switzerland in order to improve the sustainability in the gastronomy sector.

METHODS

The environmental impacts of all food purchases in several hundred canteens of the SV Group were analysed within an LCA study. The SV group provided a detailed list of purchases. In the next step, LCI data for several thousand of food items available within the ESU food database (Jungbluth et al., 2013) were linked to the purchased amounts. The objectives were twofold. In a first step, the most important ingredients were identified and the impacts of the food supply were compared with the impacts of the canteen operation. In the second stage of the project, improvement potentials were identified in the supply chain and the operation of the canteen. In the original study, the results are analysed across a

representative range of impact categories with the ecological scarcity method (Frischknecht, Steiner, & Jungbluth, 2009). Presented in this short article is the Global Warming Potential (GWP).

RESULTS

The food purchases include meat, fish, dairy products, eggs, vegetables, fruits, bread, sweets, beverages and convenience products. The contribution of each life cycle stage to the GWP of all food purchases is shown in Figure 1. The GWP is expressed per meal, which means that the GWP of all food purchases were divided by the total amount of meals delivered per year. The life cycle includes the production, the processing, the packaging, the transport to the canteen and the operation (meal preparation at the canteen).

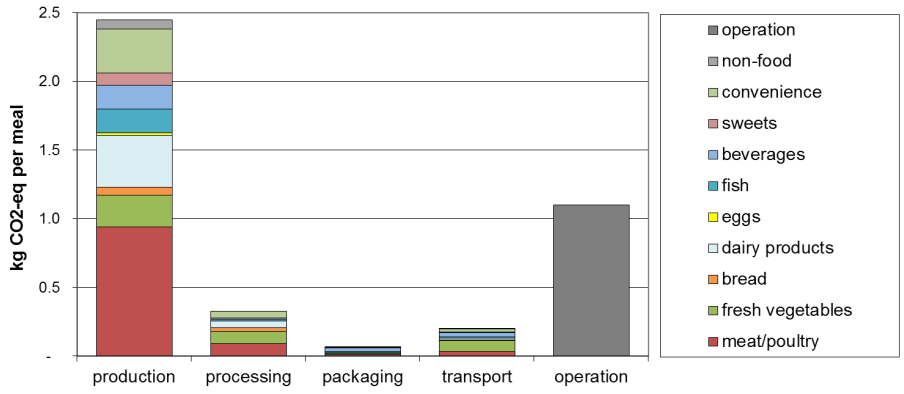

Figure 1 Global warming potential per meal of food purchases and canteen operation

A meal served in a canteen operated by the SV group has an average GWP of 4.1 kg CO2-eq. The agricultural production step is responsible for 60% of the emissions, the processing 8%, the packaging 2%, the transport 5% and the operation of the canteens (cooling, cooking, etc.) 25%. The overall GWP of the food supply is dominated by the meat and poultry products (35%), the dairy products (15%), the fresh vegetables (14%) and convenience products (14%).

The environmental impacts of vegetable and fruit purchases depend on the production period, the origin and the means of transport. For a given fruit or vegetable, all monthly supply routes were assessed in order to provide better guidance for purchases. For example, fresh broccoli is supplied from Switzerland, Spain and Italy. The fresh broccoli from Switzerland is only supplied from May to October and its GWP is 0.6 kg CO2-eq per kg. From January to May and from November to December, fresh broccoli is transported in truck from Spain and Italy. The fresh broccoli is produced in heated greenhouses and its GWP is 7.2 kg CO2-eq per kg in January, February and December. The production of fresh broccoli that is deep-frozen in order to maintain a supply during the off-season generates a GWP of 0.7 kg CO2-eq per kg. Deep-frozen vegetables are an interesting alternative to fresh vegetables cultivated in heated greenhouses. Another relevant example is the supply of green asparagus. From July to February, green asparagus cultivated in Peru and transported by air cause a GWP of

12.8 kg CO2-eq per kg. Green asparagus cultivated in Switzerland or Spain and supplied from April to June have an average GWP of 1.6 kg CO2-eq per kg. These two examples are illustrated in Figure 2.

kg CO2-eq per kg good		Jan	Feb	March	April	Mai	June	July	Aug	Sept	Oct	Nov	Dec
Broccoli	CH-truck												
	ES-truck												
	IT-truck												
Broccoli deep-frozen	CH-LKW												
Green asparagus	CH-truck												
	ES-truck												
	PE-Air												
Low value		below 2.5 kg CO2-eq per kg good											
High value		between 2.5 and 5.0 kg CO2-eq per kg good											
Very high value		above 5.0 kg CO2-eq per kg good											
Exlcusion zone		SV Group does not provide this goods											
Origin - Legend		CH	Swiss		IT	Italy		ES	Spain		PE	Peru	

Figure 2. Example of broccoli and green asparagus for the creation of the Season table

DISCUSSION

The programme “ONE TWO WE” was elaborated based on the results of the LCA and further collaborations. It consists of a set of improvement options in five fields namely the logistic, the canteen operation, the food supply and the food range. Therefore targets on certain key performance indicators have been set. The environmental performance of the logistic shall be improved by reducing the share of air-freight. The optimisation at the canteen includes for example the amount of food waste and energy efficiency (cooling, lighting, cooking and ventilation). The mitigation of the environmental impacts of the food supply relies on the reduction of fruit and vegetables cultivated in heated greenhouses. Another important measure is the reduction of the average quantity of meat per meal by offering attractive vegetarian meals and meals with a lower amount of meat per serving. A good communication with the guest and customers should explain the background of this programme while at the same time allowing the guest to choose from attractive recipes. The programme aims for a reduction of 20% on greenhouse gas emissions in canteens which follow all suggestions for improvements. The achieved reductions shall be documented transparently.

CONCLUSIONS

The programme “ONE TWO WE”. started successfully with many customers positively convinced by the proposed changes in the provision of canteen meals. In 2013 the initiative " ONE TWO WE" has been awarded with the Zurich Climate Prize 2013. The future will show whether also the guest in the canteens support the started changes.

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