



# LATVIA'S ECOLOGICAL FoodPrint

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## INTRODUCTION

The greatest environmental impacts of food consumption is linked to agricultural production and energy use in agriculture, food industry and households (food storage and preparation), but contrary to public opinion, food transportation, packaging and the waste does not cause relatively so high environmental load.

According to the study data of Latvian State Institute of Agrarian Economics (2007), more than half of Latvian population (52%) spent on food purchases from 40 to 60% of their monthly income.

## METHODOLOGY

The calculations are based on using:

the hybrid method of calculating the ecological footprint, the data of Central Statistical bureau of Latvia and FAOSTAT databases on food consumption and trade balance in Latvia and in food production, processing and transportation embedded Greenhouse gas (GHG) emissions.

Because of the lack of relevant data on carbon capacity dynamics of food products in estimations of CO<sub>2</sub> emissions of food production, processing and transportation the constant coefficients of global warming potential of products from Ecolnvent (www.ecoinvent.org) database are used. Overall, it is dealt with 108 categories of food.

## ECOLOGICAL FoodPrint

The data of Central Statistical Bureau of Latvia indicates that total food consumption is stable, but its structure is changing, what is also reflected in the ecological footprint of food consumption, where the greatest proportion is taken up by plant based products (based on an area that is required for their production), followed by animal products and fish products (see figure 1).

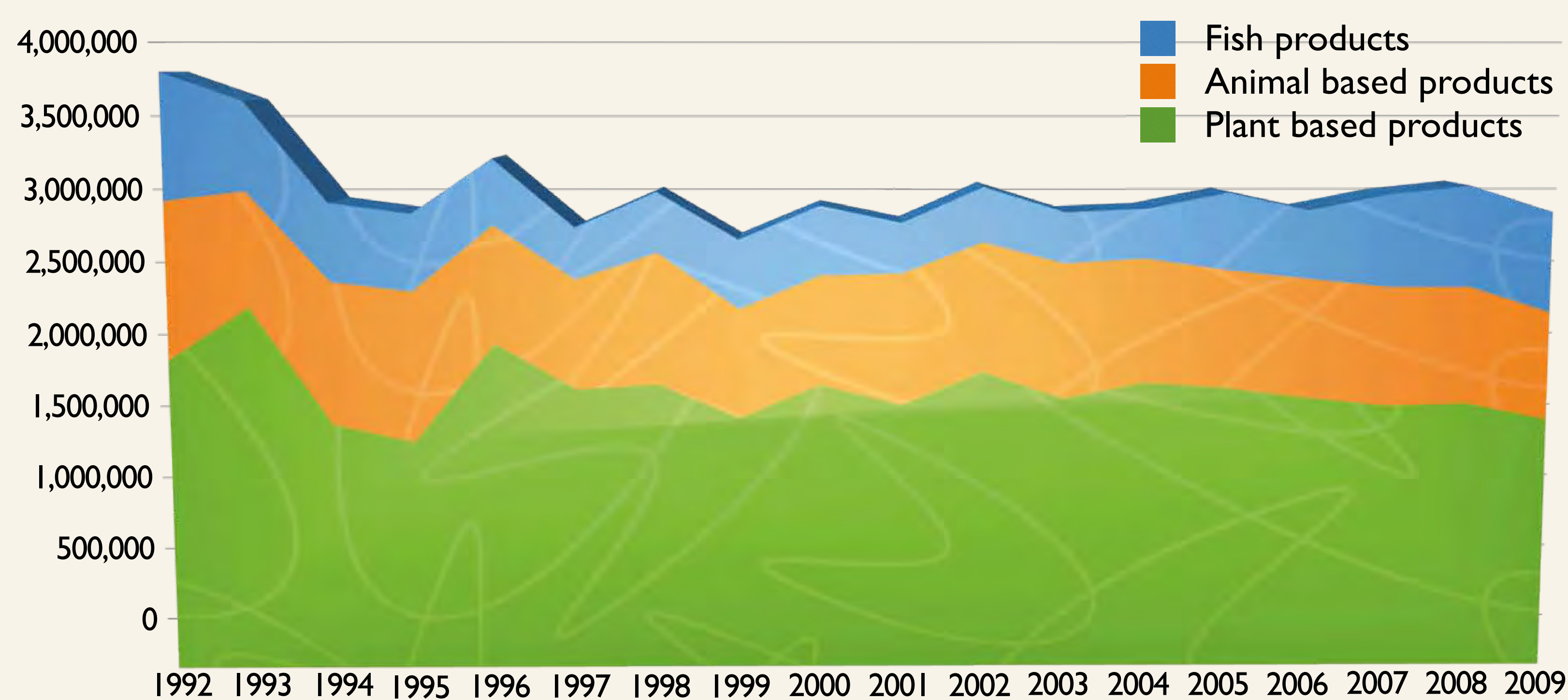


Figure1. Ecological Footprint of food consumption (global hectares per year)  
Source: author's calculations

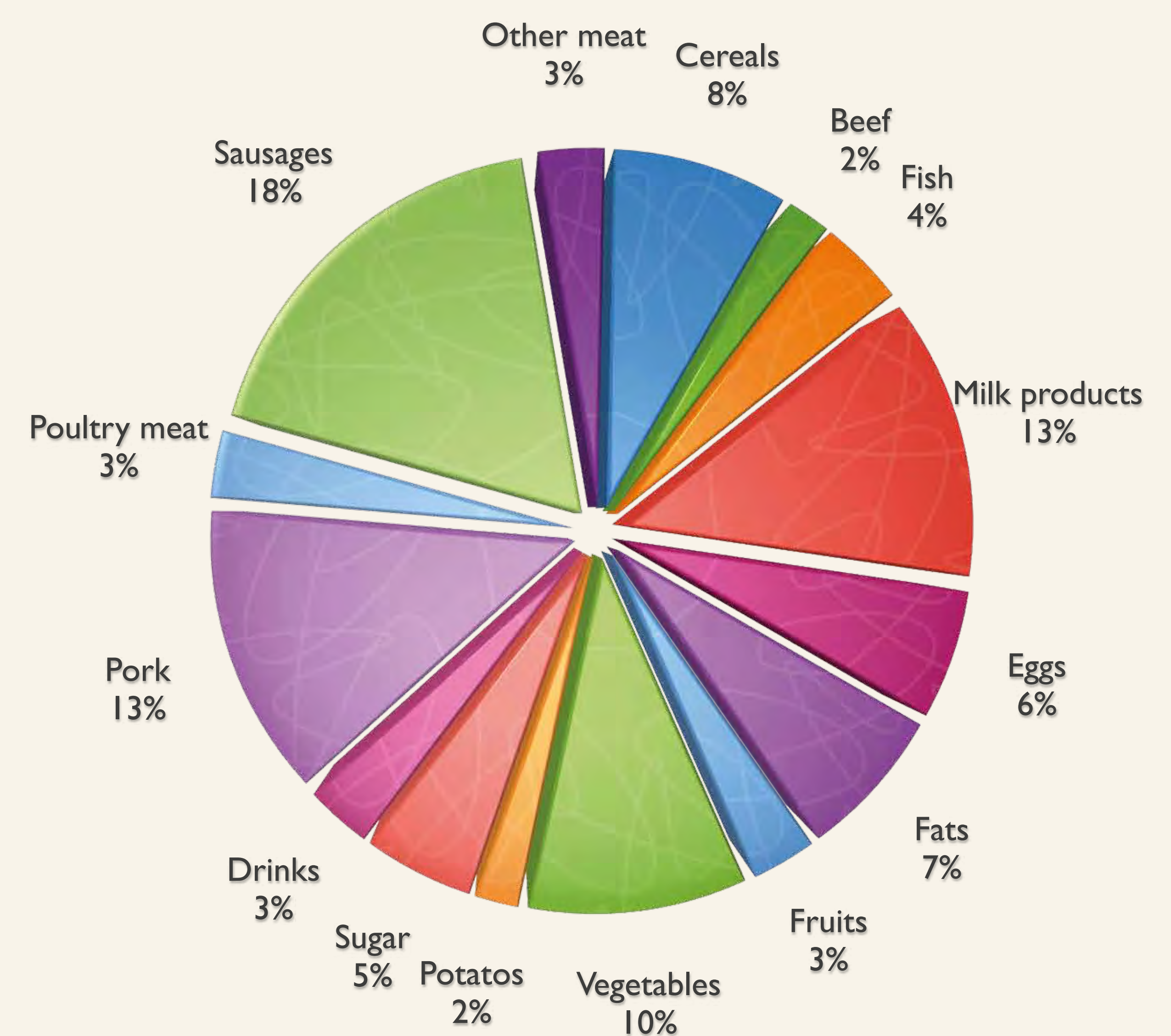


Figure2. Distribution of GHG emissions of food products consumed by Latvian inhabitants (kg CO<sub>2</sub> per capita/year)  
Source: author's calculations

According to the calculations of carbon footprints, food is responsible for approximately 55% of households GHG emissions, from what the biggest share is composed of animal products that have high carbon capacity.

## THE PRICE FACTOR

Price factor is important not only because it affects consumers' ability to meet their own needs, but also because of the increasing amount of income in society significantly increase environmental impacts caused by consumption.

Table 1  
The summary of calculation of CO<sub>2</sub> emissions of food (12 product categories for 2009)

	kg CO <sub>2</sub> /Ls	kg CO <sub>2</sub> /kg product	Kg CO <sub>2</sub> per capita per year
Median	1,32	1,19	66,58
Mean	1,55	1,70	85,00
Standard deviation	0,79	1,47	83,84
Max	3,52	5,18	329,00
Min	0,57	0,18	16,00

## WASTE

A large part of household waste (organic and inorganic) is associated with food consumption. According to the estimation of European Commission in Latvia per year 216 thousand tons of food gets into waste, (37% of this waste ensued from households, 58% from food production and processing, but 5% from the distribution and catering establishments). It is 260 g of food per day per capita. Thus, food waste is responsible for 400 thousand tons of CO<sub>2</sub> per year or 174 kg CO<sub>2</sub> per capita per year.

## CONCLUSIONS

During the last 10 years total volumes of food consumption in Latvia has decreased, but despite on this, total ecological footprint had been stable because of the increasing food carbon intensity and changes in the yields.

The diet of an average Latvian consumer is responsible for 850 to 950 kg of CO<sub>2</sub> annually. This makes 2 million tones of direct and indirect GHG emissions annually for Latvian food consumption. To supply these products food ecological footprint is on average 1.3 global hectares per capita annually. Most of these environmental pressures are associated with the consumption of animal based products (meat and dairy products).

Waste is a significant factor in the growth of food footprint in Latvia – both organic food waste and non-organic waste associated with increasing packaging is increasing.

Each Lat spent on the food consumption is responsible for an average of 1.55 kg CO<sub>2</sub> emissions. These relatively high emissions of food per one lat are partly due to low prices of food, which is related also with agricultural subsidies.

The results underline that an integrated policy approach is needed to develop sustainable food production and consumption system, looking at health, environmental and socio-economic perspectives.