Impact Report of the Humane Society of the United States' "Meatless Monday" Campaign

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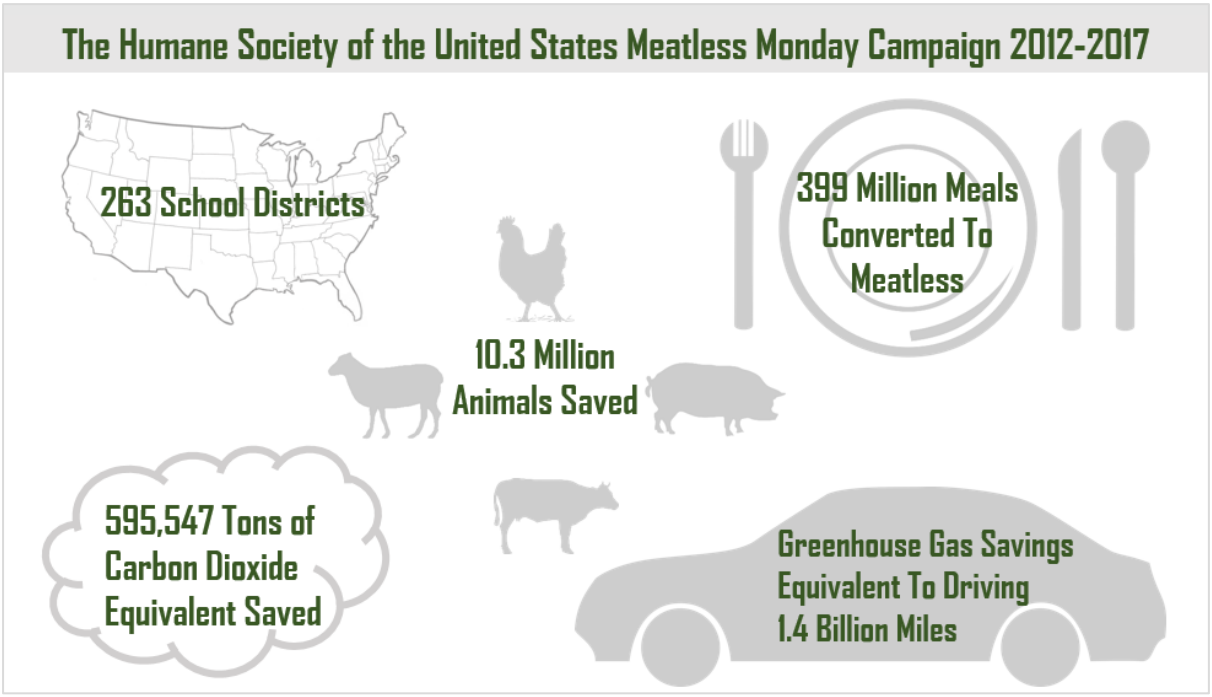
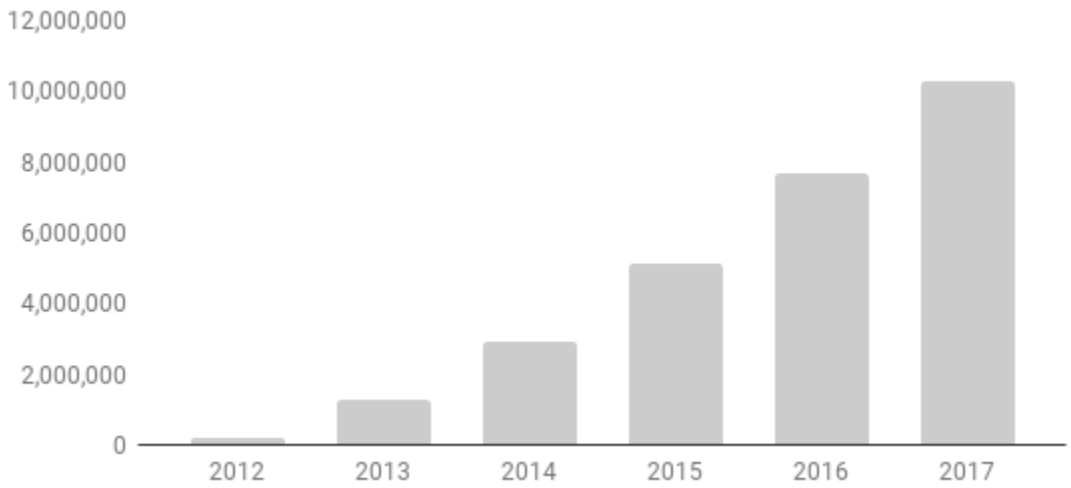
The Humane Society of the United States has a vast meat reduction campaign. One component is working with K-12 schools to implement Meatless Monday or similar programs. This impact report is solely on that aspect.



Number of animals saved (cumulatively)



Methodology for calculating number of animals saved and greenhouse gas emissions

To be conservative on the findings, all meals converted to meatless were assumed to convert meals containing an average amount of meat to meatless (vegetarian). Hence, dairy and eggs were not taken into account. To calculate the average amount of meat in a meal, the latest (2016) farm animal slaughter statistics from the USDA were collected, together with import

and export statistics to calculate the number of land animals consumed for meat in the US. This number (8 billion animals), was divided by the US population in 2016 (323,127,513 people), first subtracting the number of vegans (1% of the US population), vegetarians (3% of the US population), semi vegetarians (14% of the US population), and Meatless Monday participants (7% of the US population). Semi vegetarians were assumed to eat vegetarian for half of the week and Meatless Monday participants were assumed to eat vegetarian one day per week. To derive the number of animals saved by switching to a vegetarian meal, the annual number of animals eaten per US citizen was divided by 1095 (assumed number of meals eaten per person per year). From these calculations, the number of animals saved per meal are as follows:

Animal	Number of animals saved per vegetarian (meatless) meal	Kg CO_2e saved per vegetarian (meatless) meal
Cattle + calves	0.0001204	1.0953
Pigs	0.0003334	0.1466
Sheep (mutton + lamb)	0.0000194	0.0143
Goats	0.0000036	0.0011
Bison	0.0000002	0.0032
Chickens	0.0245123	0.2003
Turkeys	0.0007014	0.0292
Ducks	0.0000876	0.0008
Total	**0.0257783**	**1.4909**

The total animals saved per meal (0.0257783) was applied to the number of meals converted (399,454,999) to derive the total number of animals saved (10.3 million). To derive greenhouse gas (GHG) savings, the number of animals saved was converted to carcass weight (kilograms) using conversion factors in Nijdam et al (2012). For large ruminants (cows and bison), 53% of their live weight is their carcass weight. The figures are 46% for small ruminants (sheep and goats), 75% for pigs, and 70% for chickens, turkeys and ducks. The carcass weight was then multiplied by GHG emissions factors supplied by the United Nations Food and Agriculture Organization (Gerber et al., 2013). The following GHG emissions factors were applied:

Animal	**Kg CO_2e per kg carcass weight**
Cattle + calves	29
Pigs	4.7
Sheep (mutton + lamb)	24
Goats	24
Bison	52
Chickens	4.4
Turkeys	4.4
Ducks	4.4

The GHGs per meal (1.409 kg CO_2e) were multiplied by the number of meals converted to meatless (399,454,999), to derive a total GHG saving of 595,547 metric tonnes of CO_2e.

Impacts of the HSUS Meat Reduction Campaign 2012 - 2017[1]

Number of school districts	263
Number of meals converted to MM (running total)	399,454,999
Number of land animals saved (running total)[2]	10,297,271
Tonnes of CO_2e saved (running total)	595,547
Equivalent US car miles saved[2]	1,452,554,777
Equivalent to average annual car mileage in the US[3]	126,712

Notes

1. All savings reported are considered to be conservative estimates as not all school districts have provided data and fish and shellfish are not included due to data limitations.
2. GHG savings were converted to car miles using data from the US Environmental Protection Agency, which shows that US citizens drive an average of 11,400 miles per year and emit 4.7 tonnes CO_2. Source: Source: https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle-0
3. This should be interpreted as GHG savings equivalent to taking 126,712 cars off the road for an entire year.

References

Gerber P, Steinfeld H, Henderson B, Mottet A, Opio C, Dijkman J, Falcucci A, Tempio G (2013) Tackling climate change through livestock—a global assessment of emissions and mitigation opportunities. Food and Agriculture Organization, Rome.

Nijdam D, Rood T, Westhoek H (2012) The price of protein: review of land use and carbon footprints from life cycle assessments of animal food products and their substitutes. Food Policy 37:760–770.

About the Author

Dr Helen Harwatt is an international award winning researcher and scientific author specialising in the field of planetary health, with a focus on the environmental impacts of animal to plant protein shifts. Helen runs the consultancy group 'Planet Friendly Food', consults with NGOs and institutes on sustainable food issues, and is a research fellow at Harvard University. Prior to this, Helen spent 3 years developing the environmental nutrition research program at the Loma Linda University in California, and 7 years at the University of Leeds' Sustainability Research Institute in the UK, conducting multidisciplinary research on climate change mitigation, as an affiliate of the Tyndall Centre for Climate Change Research and the Centre for Low Carbon Futures.