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### **Unlocking the potential of plant-based diets**

The European Vegetarian Union (EVU) welcomes the opportunity to contribute to the “Strategy for long-term EU greenhouse gas emissions reductions” in accordance with the Paris Agreement. Climate change is a massive threat to food security, water availability, and biodiversity worldwide as well as a major cause of environmental disasters thus affecting agricultural production within the EU. Conversely, the European agricultural sector contributes significantly to global warming, especially through the production of animal products. Reduction of livestock farming and shifts in consumption patterns towards more plant-based diets are clearly needed in order to set the path for fulfilment of the Paris Agreement.

### **The role of animal agriculture in climate change**

Meat, dairy, and egg production are among the leading causes of climate change. According to the Food and Agricultural Organization of the United Nations (FAO), farmed animals are responsible for 14.5% of total anthropogenic greenhouse gas (GHGs) emissions.<sup>1</sup> In total, the global food system accounts for approximately 30% of all human made emissions.<sup>2,3</sup> Worldwide, the top 5 meat and dairy corporations emit more GHGs than Exxon, Shell or BP.<sup>4</sup> In the EU, the agricultural sector accounts for about 10 % of total GHG emissions (excluding Land Use, Land-Use Change and Forestry [LULUCF]), largely due to the livestock sector.<sup>5</sup> With current emission reduction targets in place, the agricultural sector is projected to account for a third of total EU emissions by 2050<sup>6</sup>, thus strongly contradicting the EU’s commitment to fulfil the goals set out by the Paris Agreement. Both direct emissions and indirect emissions (e.g. from land-use change) are of paramount importance for getting on the pathway towards implementing the goals stipulated in the Paris Agreement.

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<sup>1</sup> Gerber, P. et al. (2013): Tackling climate change through livestock: a global assessment of emissions and mitigation opportunities. FAO, Rome.

<sup>2</sup> Vermeulen, S. J. et al. (2012): Climate Change and Food Systems. Annual Review of Environment and Resources 37, p.195–222.

<sup>3</sup> Bajželj, B., J. M. Allwood & J. M. Cullen (2013): *Designing Climate Change Mitigation Plans That Add Up*. Environ Sci Technol. 47, p.8062–8069.

<sup>4</sup> Heinrich Böll Stiftung, GRAIN & Institute for Agriculture & Trade Policy (2017): Big Meat and Dairy’s supersized Climate Footprint.

<sup>5</sup> Eurostat (2018): Agri-environmental indicator – greenhouse gas emissions.

[http://ec.europa.eu/eurostat/statistics-explained/index.php/Agri-environmental\\_indicator\\_-\\_greenhouse\\_gas\\_emissions](http://ec.europa.eu/eurostat/statistics-explained/index.php/Agri-environmental_indicator_-_greenhouse_gas_emissions)

<sup>6</sup> European Commission (2011): A Roadmap for moving to a competitive low carbon economy in 2050.

[https://eur-lex.europa.eu/resource.html?uri=cellar:5db26ecc-ba4e-4de2-ae08-dba649109d18.0002.03/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:5db26ecc-ba4e-4de2-ae08-dba649109d18.0002.03/DOC_1&format=PDF)

Besides being a source of direct emissions, animal agriculture further exacerbates climate change as vast areas of forests, grasslands and wetlands within the EU and abroad are cleared to provide land for grazing and to grow animal feed crops. Forests and other wildlands mitigate climate change by acting as massive carbon sinks.

Emission levels continue to rise due to ever-intensifying meat and dairy production. If the consumption of meat and other animal products continues to increase at current rates, global GHGs emissions from animal agriculture will rise by nearly 80% by 2050, consuming a large part of the global emissions budget.<sup>7,8,9</sup> As a result, achieving the climate targets set in the Paris Agreement would be unattainable. Therefore, reducing the production and consumption of animal products is an essential step towards the 2 °C and 1.5 °C targets.<sup>10,11</sup>

### Unlocking the potential

The aforementioned facts indicate that current levels of livestock farming and the predominant diet within the EU, relying heavily on animal products, interfere with the implementation of the Paris Agreement. Therefore, aiming at gradual shifts in diets is a crucial step in the right direction. There is a consistent evidence that plant-based diets are more climate-friendly compared to diets relying heavily on animal products. Consider, for example, that producing 1 kg of beef releases between 16 and 30 kg of carbon dioxide (equivalent) into the atmosphere,<sup>12,13,14,15,16</sup> while producing 1 kg of tofu releases only 1 kg of carbon dioxide (equiv).<sup>17</sup> Multiple studies suggest that

<sup>7</sup> Popp, A. et al. (2010): Food consumption, diet shifts and associated non-CO2 greenhouse gases from agricultural production. *Global Environmental Change* 20, p.451–462.

<sup>8</sup> Tilman, D. & M. Clark (2014): Global diets link environmental sustainability and human health. *Nature* 515, p.518–522.

<sup>9</sup> Springmann, M. et al. (2016): Analysis and valuation of the health and climate change co benefits of dietary change. *PNAS* 113, p.4146–4151.

<sup>10</sup> Brent Kim et al. (2015): The Importance of Reducing Animal Product Consumption and Wasted Food in Mitigating Catastrophic Climate Change. *John Hopkins Center for a Livable Future*.

<sup>11</sup> Hedenus, F., S. Wirsenius & D. J. A. Johansson (2014): The importance of reduced meat and dairy consumption for meeting stringent climate change targets. *Climatic Change*. 124, p.79–91.

<sup>12</sup> Lesschen, J P., M. van der Berg et al. (2011): Greenhouse gas emission profiles of European livestock sectors. *Animal Feed Science and Technology*, pp. 166-167 and pp. 16-28.

<sup>13</sup> Garnett, T. (2009): Livestock-related greenhouse gas emissions: Impacts and options for policy makers. *Environmental Science and Policy* 12, pp. 491–504.

<sup>14</sup> Carlsson-Kanyama, A., & A. D. González (2009): Potential contributions of food consumption patterns to climate change. *The American Journal of Clinical Nutrition* 2009; 89 (suppl), pp. 1704S-9S.

<sup>15</sup> Reinhardt, G., S. Gärtner, Münch, J. & S. Häfele (2009): Ökologische Optimierung regional erzeugter Lebensmittel: Energie- und Klimabilanzen, Heidelberg: IFEU.

<sup>16</sup> Venkat, K. (2012): The climate change and economic impacts of food waste in the United States, Portland, OR: CleanMetrics Corp.

<sup>17</sup> Mejia, A. et al. (2017): Greenhouse Gas Emissions Generated by Tofu Production: A Case Study. *Journal of Hunger & Environmental Nutrition*.

personal food-related carbon footprints could be halved with the adoption of a plant-based diet.<sup>18,19</sup>

Given that meat, dairy and other animal-based foods emit more GHGs and require significantly more land and other resources than plant-based foods, it should be concluded that shifts to increasingly plant-based diets are a simple and effective measure to make a positive impact on the food system's GHG emissions.

### **Start the discussion**

The EVU encourages decision makers to introduce and prioritise food production and consumption, particularly with regards to animal products, within the long-term EU climate policy agenda and national implementation plans. Gradual societal dietary change should be encouraged through broad policy strategies aiming at reducing consumption of animal products. Policy strategies should include measures such as shifts in agricultural subsidies within the CAP framework, taxation, changing the regulatory framework on innovative plant-based products and more plant-based options in public canteens.

Overall, there is a solid case for a strong commitment by the EU and of more ambitious National Determined Contributions (NDCs) of its member states that should strengthen action in the field of agriculture and sustainable food consumption.

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<sup>18</sup> Wissenschaftlicher Beirat für Agrarpolitik, Ernährung und gesundheitlichen Verbraucherschutz & Wissenschaftlicher Beirat Waldpolitik beim BMEL (2016): Klimaschutz in der Land- und Forstwirtschaft sowie den nachgelagerten Bereichen Ernährung und Holzverwendung.

<sup>19</sup> Scarborough, P. et al. (2014): Dietary greenhouse gas emissions of meat-eaters, fish-eaters, vegetarians and vegans in the UK. Climatic Change 125, p.179–192.