

DRIVEN TO WASTE: GLOBAL FOOD LOSS ON FARMS

REPORT SUMMARY

JULY 2021

In 2011 the UN Food and Agriculture Organization (FAO) estimated that one-third of all global food production is wasted, contributing to massive levels of environmental degradation and perpetuating food insecurity. This marked the launch of a global effort to accurately quantify the amount of food lost and wasted at all stages of the supply chain in order to monitor the impacts of food waste and progress achieved in reducing it. These efforts were given extra importance by the Sustainable Development Goal (SDG) 12.3, which in 2015 set the target to halve per capita post-retail global food waste by 2030 and achieve a reduction in pre-retailer losses. There has never been a more important time to redouble our efforts to reduce food waste in light of heightened awareness of our food system's impact on environmental health and global issues of food insecurity and undernutrition.

Despite this, food lost on farms remains neglected in comparison to efforts targeted at retail and households. This is due in part to the complexities in measuring farm stage loss, creating difficulty in measuring progress in reductions and an underestimation in the significance of its contribution to food waste levels. *Driven to Waste* estimates the total amount of food lost on farms, for the first time since 2011. Other estimates look only at post-harvest losses. When combined with updated data on loss in supply chains and waste at retail and consumption, we have a clearer picture of the scale of food loss and waste from farm to fork and the imperative that this stage is no longer overlooked in efforts to keep global warming below 1.5 degrees, reduce food insecurity and slow biodiversity loss.

KEY FINDINGS

Driven to Waste estimates that 1.2 billion tonnes of food is lost on farms, during and around, and after harvest. This is equivalent to 15.3% of food produced.

It is estimated that total food loss and waste is over 2.5 billion tonnes – closer to 40% of all food produced, compared to the commonly cited 33%. This is based on the figure of 1.2 billion tonnes of food lost on farms from this report, the 931 million tonnes wasted in retail, food service and consumer homes from the UNEP Food Waste Index, and calculations to estimate losses occurring in the post farmgate transport, storage, manufacturing and processing stages.

The report also notes that increases in total amounts of food lost and wasted mean the amount of greenhouse gas emissions generated by food that goes unconsumed also increases – from previous estimates of 8% of all total GHG emissions, to 10%.

To date, there has been a relative lack of focus on reducing farm-stage food loss. This is in part due to difficulty in measuring food lost at the farm stage, particularly that which remains unharvested for a variety of reasons but the lack of progress in high-income countries can also be attributed to the perception that post-retail waste is a greater priority in high-income countries.



1.2 BILLION TONNES OF FOOD, is wasted on farms each year – the weight of 10 million blue whales. This is significantly more than the 931 million tonnes wasted from retail, food service and households¹ and enough to feed to the world's 870 million undernourished four times over.



\$370 MILLION OF FOOD IS WASTED ON FARMS. Reducing this could support significant progress towards the SDGs of 'No Poverty' and 'Zero Hunger', particularly in low-income countries where post-harvest waste amounts to 291 million tonnes each year.



58% OF GLOBAL HARVEST STAGE WASTE occurs in the high- and middle-income countries of Europe, North America and Industrialised Asia² – despite these countries having higher on-farm mechanisation and only 37% of the global population.



2.2 GIGATONNES CO₂eq is the overall carbon footprint of farm stage food waste – approximately 4% of all anthropogenic greenhouse gas (GHG) emissions and 16% of agricultural emissions. This is equivalent to the emissions from 75% of all cars driven in the US and Europe over a year.



4.4 MILLION KM² OF LAND is used to grow food which is lost on farms each year – larger than the Indian subcontinent. This area of land could contribute significantly to rewilding efforts.

However, *Driven to Waste* finds that despite having higher on-farm mechanisation, high- and middle- income countries of Europe, North America and Industrialised Asia, with only 37% of the global population, contribute 58% of global harvest loss (368 million tonnes). By comparison, low-income countries with 63% of the population have a 54% share of global post-harvest farm-stage loss (291 million tonnes). Action to tackle on-farm food loss is required globally and not just in specific regions. Interventions in the past have tended to focus on technical solutions, addressing issues with farm technology or storage, whilst largely ignoring socio-economic and market factors that shape the agricultural system. Through case studies across a variety of regions and food commodity types, this research uncovers the impact of decisions made further downstream, in markets and even by the public, on the levels of food loss occurring on farm.

ACTION AREAS

This research shows that food loss at farm level is driven by a multitude of human factors and decisions within the later stages of the supply chain – while waste in the supply chain is often driven by changeable factors at a farm level. Interventions targeted at the environmental and biological drivers of food ‘loss’ are unlikely to succeed until they are supported by changes to the human elements of the supply chain:¹

1. **Markets and supply chains:** Current market structures separate farmers from their end market, making it difficult for farmers to take into account the infrastructure and end market which can lead to mismatches in the volume of production, time of planting, cultivars planted and time of harvest, all of which influence food waste levels. Additionally, market practices frequently maintain asymmetric power balances which favour markets over farmers. In many supply chains this weakens farmers’ abilities to negotiate and suppresses their incomes, making it more difficult to break cycles of poverty and invest in training and technology to reduce food waste.
2. **National governments:** National governments play a key role in determining the importance placed on food waste work and the stages of the supply chain that are prioritised. Despite the massive contributions of food waste to national carbon footprints, fewer than 6% of Paris Agreement signatories have included food loss and waste in their national carbon plans. Food loss on farms must take a higher position on policy agendas in the form of legally binding food waste reduction targets, policies which protect farmers from unfair trading practices, investment in infrastructure, R&D and training, and stronger animal welfare and fishery laws that reduce the volume of waste in livestock and seafood production. Governments also need to review farmer support practices that favour crops meant for export over those for domestic consumption.
3. **Multilateral Institutions & NGOs:** Globally, food waste initiatives must strive to make greater progress on measuring and reducing farm stage losses. This can be supported by future initiatives and programmes setting targets to reduce food loss and waste by 50% from farm to fork, ensuring greater ambition and focus, and increasing funding available to programmes aiming to intervene at this stage of the supply chain. Additionally, exclusion of food diverted from the human food supply chain to animal feed due to overproduction or failure to meet specifications from food waste reporting masks the true extent and drivers of food loss on farms. This should be included in food loss and waste reporting in order to increase the focus on reducing over-production and the carbon footprint of agriculture, as well as tackling practices that drive food waste.
4. **Citizens:** The public plays an active but thus far unaddressed role in driving food loss at the farm stage. Communicating this will enable them to become active food citizens and empower them to take control of their food choices. This can drive changes that support farmers in reducing food loss and waste and promote greater environmental health.

Driven to Waste presents clear evidence that farm-stage food loss is a significant but overlooked food waste hotspot. As work continues globally to stabilise climate change, slow and reverse biodiversity loss and increase food security, it has never been more evident that moves towards sustainable agriculture are imperative. With food waste on farms contributing 16% of all agricultural emissions, driving land-use change and contributing to environmental degradation, targeting a reduction in the 1.2 billion tonnes of food wasted at the farm stage can no longer be overlooked.

¹ The drivers of food loss on farm vary depending on the region and culture, the crop and the farm (e.g. smallholder farms’ drivers will differ from larger farms), as such, on-farm interventions to target the drivers of food loss must be context specific.