

Pigs could stop 14 million tonnes of surplus food from being wasted

New research shows how this can be done safely

Of the 88 million tonnes of food that currently leave the food supply chain as waste, a minimum of 14 million tonnes of surplus food could become available for non-ruminant feed if we were to change legislation to allow the feeding of such surplus once it has been treated to ensure safety.

The EU research project REFRESH identifies the safety, nutritional, environmental and economic aspects of potential EU legislative change that would allow omnivorous non-ruminant livestock to be fed with surplus food. In consultation with top veterinarians, microbiologists and pig nutritionists, it is concluded that such surplus-based feed should be sourced solely from specialist licenced processing facilities.

Environmental and economic benefits

Using half of the surplus food from the EU retail, manufacturing and catering sectors to replace pigfeed could lead to an estimated reduction of greenhouse gas emissions of 5.8 million tons of CO₂ eq. per yearⁱ. This is equal to the emissions from nearly three million UK passenger cars driven for one year.

The EU imports over 5 million tonnes of soya annually from Brazil (EC Statistics, 2018) where soya farming drives deforestationⁱⁱ. Feeding meat-containing surplus to pigs could replace 800 thousand tonnes of soya currently used in pigfeed in the EUⁱⁱⁱ.

A life cycle costing assessment by REFRESH shows that when surplus food is generated in locations near pig farms, using surplus food in pigfeed can result in economic savings. Furthermore, a techno-economic scaling evaluation by REFRESH suggests that small to medium-sized treatment plants could be commercially viable. The REFRESH report also addresses questions around the nutritional quality of feed made from surplus food.

Safety and nutrition

The 2001 Foot and Mouth outbreak, which led to the ban on feeding surplus food to livestock, started with the illegal feeding of untreated food waste to pigs in the UK. With this experience and current threats such as African Swine Fever in mind, REFRESH research demonstrates that heat treatment, acidification and biosecurity processes can achieve adequate pathogen inactivation and deliver safe feed for pigs.

In the European context, treatment and biosecurity requirements should be more rigorous than those currently applied in by the Japanese ecofeed sector who are the global pioneers of a modern surplus food to feed industry.

Central to the safety premise of our proposal is that surplus food can only be treated in specialist licensed treatment plants which comply with the same stringent biosecurity measures currently required of the rendering industry.

With regard to the potential presence of traces of pork in surplus food, an EU scientific opinion issued prior to the introduction of the intraspecies recycling

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ban states that *"no scientific evidence exists to demonstrate the natural occurrence of Transmissible Spongiform Encephalopathy ("TSE") in farmed pigs, poultry and fish, which may create a basis for an intra-species progression of a TSE infection due to intra-species recycling"* (EC Scientific Steering Committee 1999). A new opinion by the European Food Safety Authority (2007) confirms that there is no natural occurrence of TSE in pigs. There is no intraspecies recycling ban for non-ruminants in the United States, New Zealand, Australia and Japan, where only ruminant livestock is subject to TSE legislation.

REFRESH ("Resource Efficient Food and dRink for the Entire Supply cHain") is an EU funded project taking action against food waste. 26 partners from 12 European countries and China work towards the project's goal to contribute towards Sustainable Development Goal 12.3 of halving per capita food waste at the retail and consumer level and reducing food losses along production and supply chains, reducing waste management costs, and maximizing the value from unavoidable food waste and packaging materials. REFRESH runs from July 2015 until June 2019.

ⁱ The REFRESH calculations account for the heat-treatment, safe processing, collection and transport of the surplus food to pig farms. They are only an estimate based on pig farming market conditions and food waste figures for France and the UK.

A modern "ecofeed" industry in Japan already processes 52% of manufacturing, catering and retail surplus food into feed. For this to be possible in the EU, we need to create separate legal provisions for non-ruminant livestock such as pigs and chickens and ensure surplus food is adequately processed to guarantee its safety.

The priority of REFRESH remains the prevention of food waste at source. Animal feed is an important destination for unavoidable surplus food. Passenger car numbers calculated from UK government data on vehicle mileage and petrol use, and emission/gallon data from US government.

ⁱⁱ Trase is a database that generates indicators of deforestation risk using localised data on commodity production, sourcing patterns and deforestation. <https://trase.earth/>. Trase data show that during the last decade soya traders in the Brazilian market with zero-deforestation commitments - Cargill, Bunge, ADM and Amaggi - have been associated with similar deforestation risk as companies that have not made such commitments.

In May 2018, five traders and multiple soy farmers were fined a total of US \$29 million by the Brazilian government for soybean cultivation and purchasing that is connected to illegal deforestation (Byrne 2018a). Two of the five companies fined - Cargill and Bunge - are among the top five soya exporters from Brazil, who had adopted zero deforestation commitments. The fine demonstrates the vulnerability of the companies' systems for monitoring and tracking their supplies and the fact that they cannot guarantee that their sources are deforestation-free (Vasconcelos and Burley 2018). In other words, reducing demand may be one of the only ways to guarantee no further deforestation.