

# **Solar Drying of Food Waste as a Feed Production Process: Experience from the Three Operational Periods of the F4F Pilot Unit**

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## **Abstract**

International attention on the issue of food loss and waste is firmly reflected in the 2030 Agenda for Sustainable Development (FAO, 2019). It is often assumed that reducing food losses and waste will automatically help reduce world hunger and improve food security. The evidence today indicates that globally about one-third of the food produced is lost or wasted, along the food chain, from production to consumption (HLPE, 2014). Many countries are already taking actions to reduce food loss and waste, but the challenges ahead remain significant and we need to step up efforts. Within the LIFE-F4F project a pilot scale modified solar drying process provides an innovative, low-tech and low emissions method for safe transformation of source separated food waste into animal feed. The F4F project targets food waste sourced from the luxury hospitality industry units, applying strict quality assurance standards. The process involves an efficient food waste collection system and a processing unit consisting of a hand sorting conveyor belt, a shredding and pulverizing system and a solar drying greenhouse with two rotary turners, yielding a total nominal processing capacity of 1.5 t/day. An innovative solar drying procedure, supported with a heat pump and a subfloor heating system is used to dry food waste in a steady temperature of 55 °C. The initial moisture of the collected food waste is about 75 - 80% and the final moisture of the dried product is up to 12%. Three operational period have been concluded, from May till October, for the years 2018, 2019 and 2020. More than 500 tn of food waste have been collected, treated and solar dried, producing more than 100tn of a material used as a component in animal feed. About 4 days are needed for the drying of the food waste for months July and August and less than 10 days for months May and October. The produced material has been used in pets, pigs and broilers with promising preliminary results. Within the F4F project an ambitious prospect of utilization of food waste is initiated in the field of animal feed, always taking into account the limiting factors of the legislation. Is it time to incorporate source separation of food waste and utilization as part of an integrated MSW management

scheme? Could any legal restriction be reconsidered?

**Keywords:** hotel food waste, solar drying, novel feeds, Crete

**References**

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