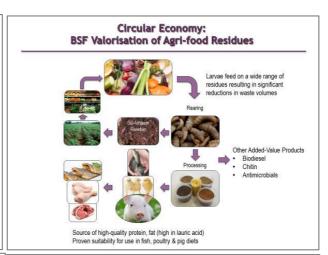
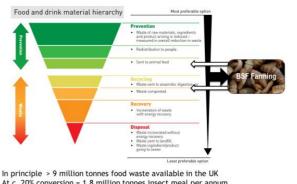
Appendix 3: Visuals

• Highly efficient in the rapid conversion of organic "wastes" into biomass • A natural component of the diets of carnivorous fish and free-range poultry • Protein digestibility higher than most vegetable-based proteins • Land use requirements vastly lower as compared to crop protein Black soldier fly Hermetia illucens Globally preferred insect species for commercial scale production Puppe 14 days S-6 days Larvae 14 days



Insects as Livestock Feed: UK Drivers

- · To enhance valorisation of Agrifood residues and other waste streams
- To reduce heavy reliance upon protein imports (fishmeal & soya meal) current value £1.9 billion p.a. (2015)
- UK compound feed sector willing to utilise new and more sustainable sources of protein (annual production 15.7 million tonnes; value £3.63 billion)
- UK pet food sector needs new and more sustainable sources of protein
- To reduce the aquaculture industry's reliance on fishmeal as a protein source, and existing use of plant-based alternatives (fishmeal currently represents c. 20% of salmon diet composition); research has shown that insect/BSF meal can replace 50% or more of fishmeal in farmed fish diets.

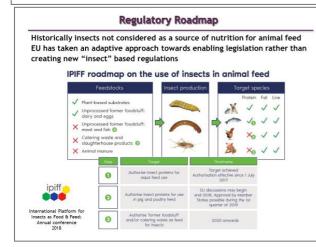


At c. 20% conversion = 1.8 million tonnes food waste available in the UK

How might insect production fit/complement current supply chains?

Regulatory hurdles: food waste containing meat products not permitted as insect rearing substrates

Figure adapted from WRAP 2015 Report "Estimates of Food and Packaging Waste in the UK Grocery Retail and Hospitality Supply Chains"





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