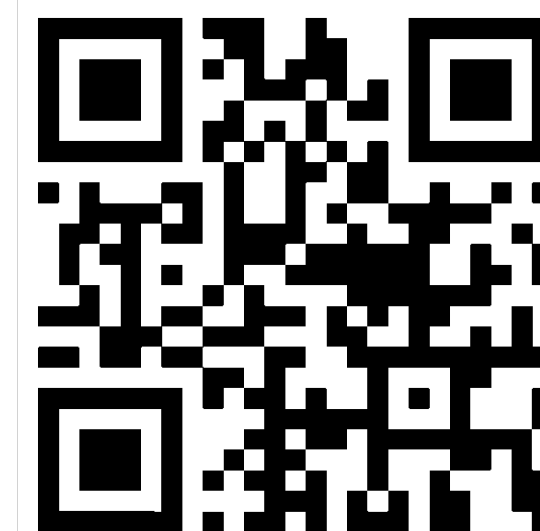


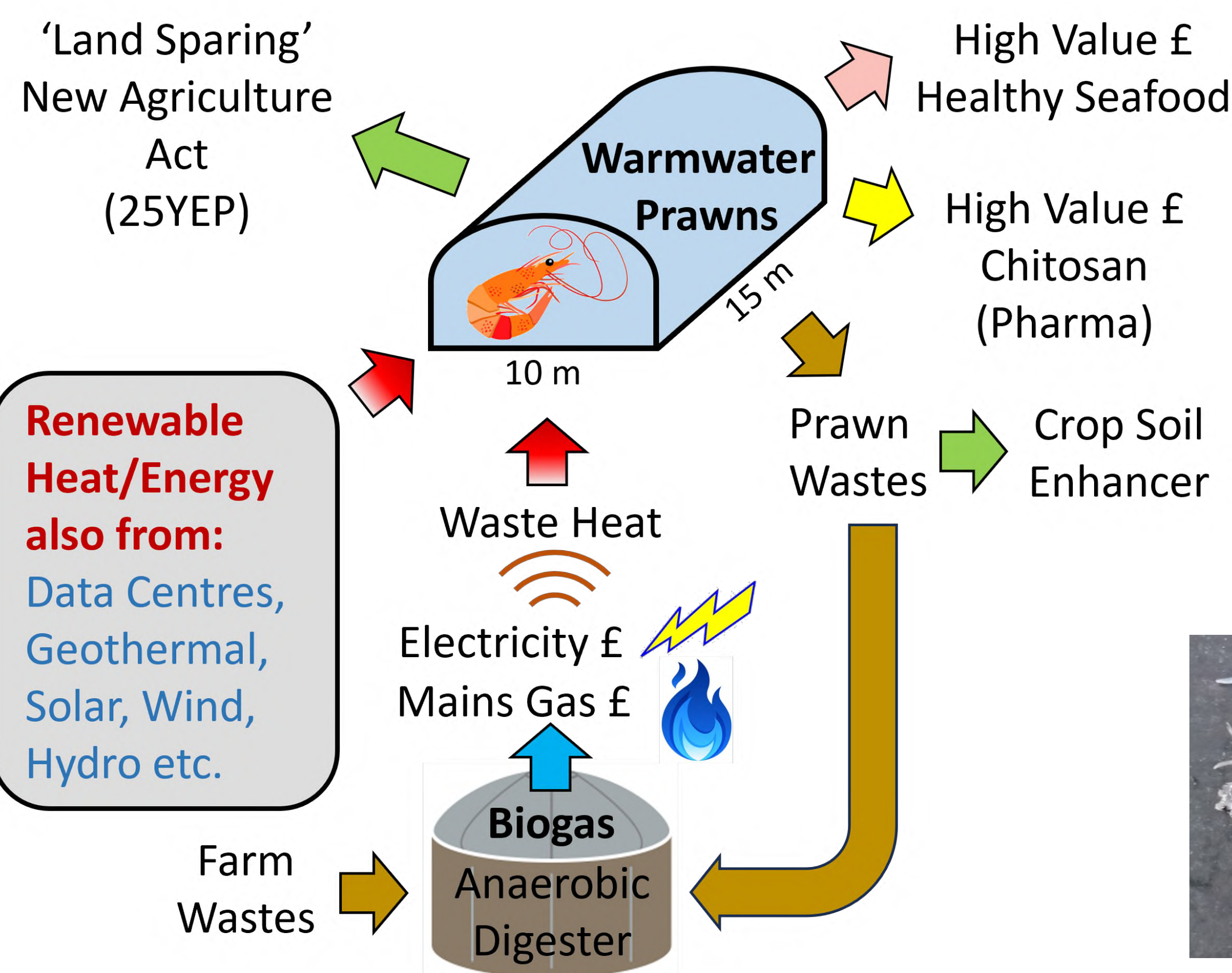


The UK Sustainable King Prawn Project

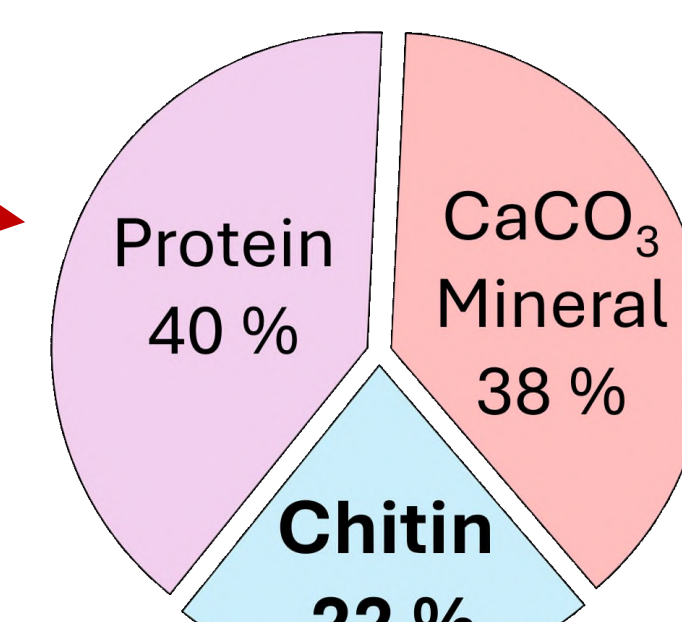


Rod W. Wilson, Robert P. Ellis, Trystan Sanders, Rajesh Manchi, Alexis Perry, Owaen Guppy, Pawel Sierocinski, Angus Buckling, Ian Bateman, Thiago Morello, Diana Tingley⁽¹⁾, Martin Blackwell⁽²⁾, Robert Dunn⁽²⁾, Andrew Whiston⁽³⁾

(1) Exeter University, (2) Rothamsted Research, (3) RASTECH



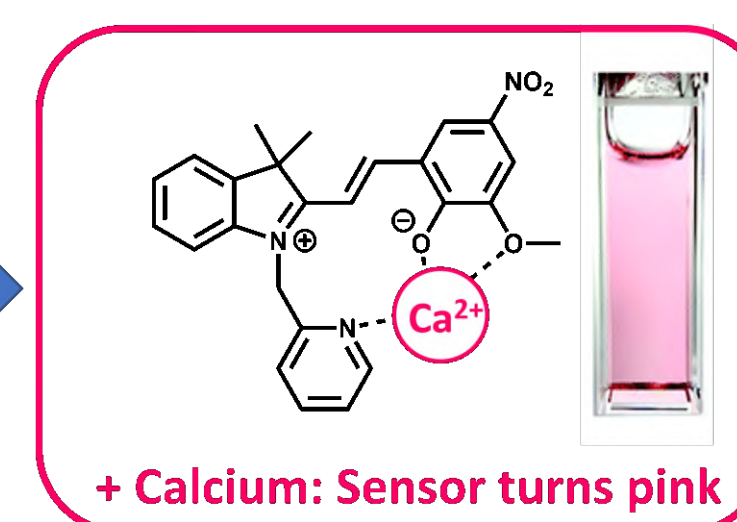
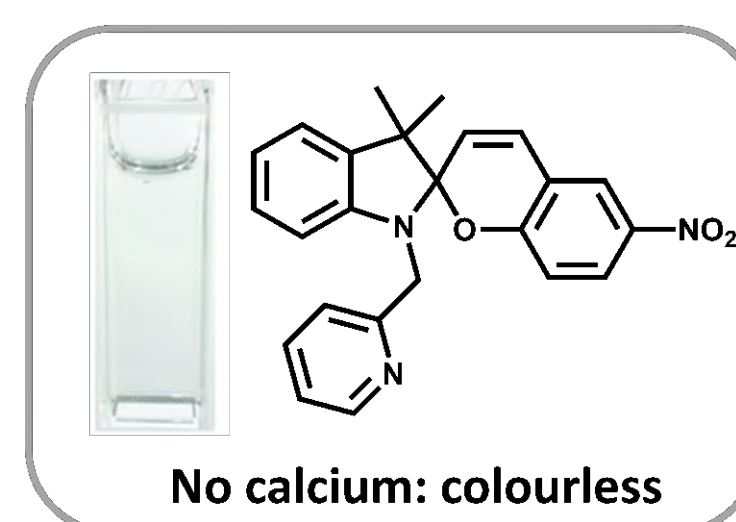
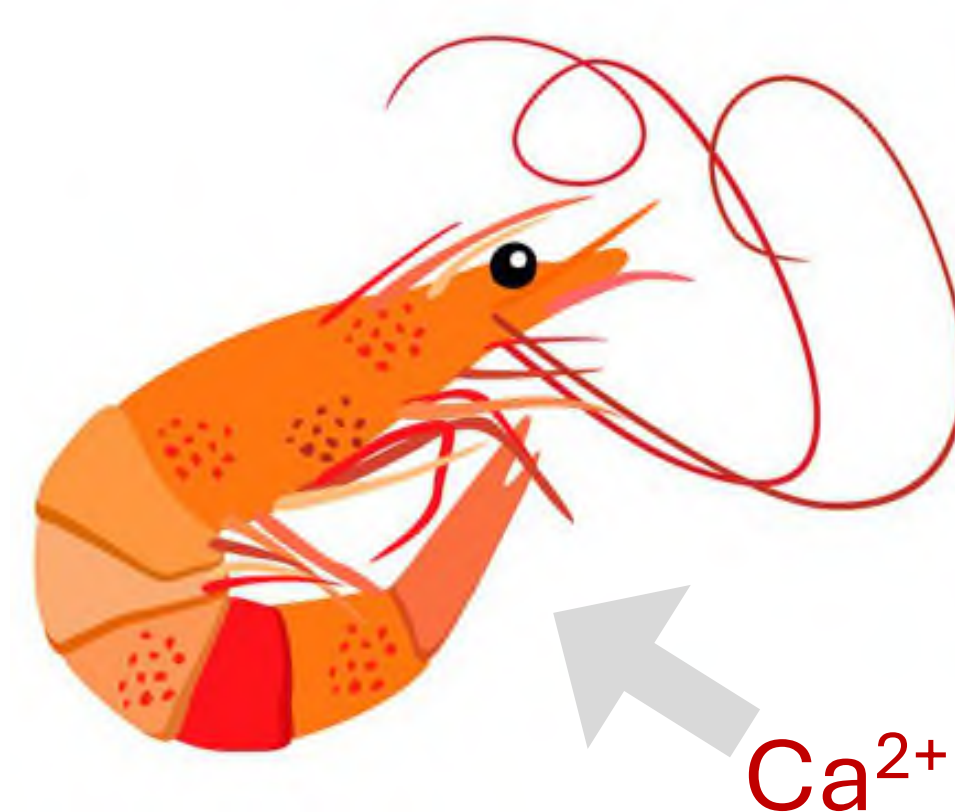
The UKSKPP provides a great exemplar of growing healthy, popular, tropical seafood species in the UK with minimal environmental impact by co-locating **indoor, recirculating aquaculture systems (RAS)** with waste heat and renewable energy sources and ensuring full circularity of all waste streams is integrated into the production model.



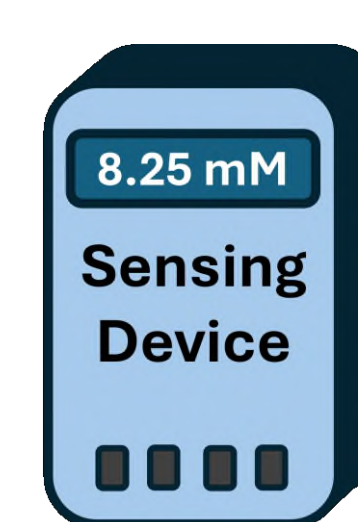
Prawns grow by moulting. Shed exoskeletons contain high-quality chitin, used to make **chitosan** for pharmaceuticals, antimicrobials, bio-polymers, agriculturals & cosmetics. **= Extra £ from Waste Stream !**

After each moult prawns rapidly absorb **calcium** to harden the new exoskeleton. Farmers must tightly manage water calcium to ensure healthy prawns. We established optimal water chemistry for this (Ca^{2+} , HCO_3^- , salinity, CO_2) and to maximise yield of waste chitin and profitable chitosan.

We developed a **novel calcium sensor** now being commercialised for the first ever automated water quality management of calcium in aquaculture.



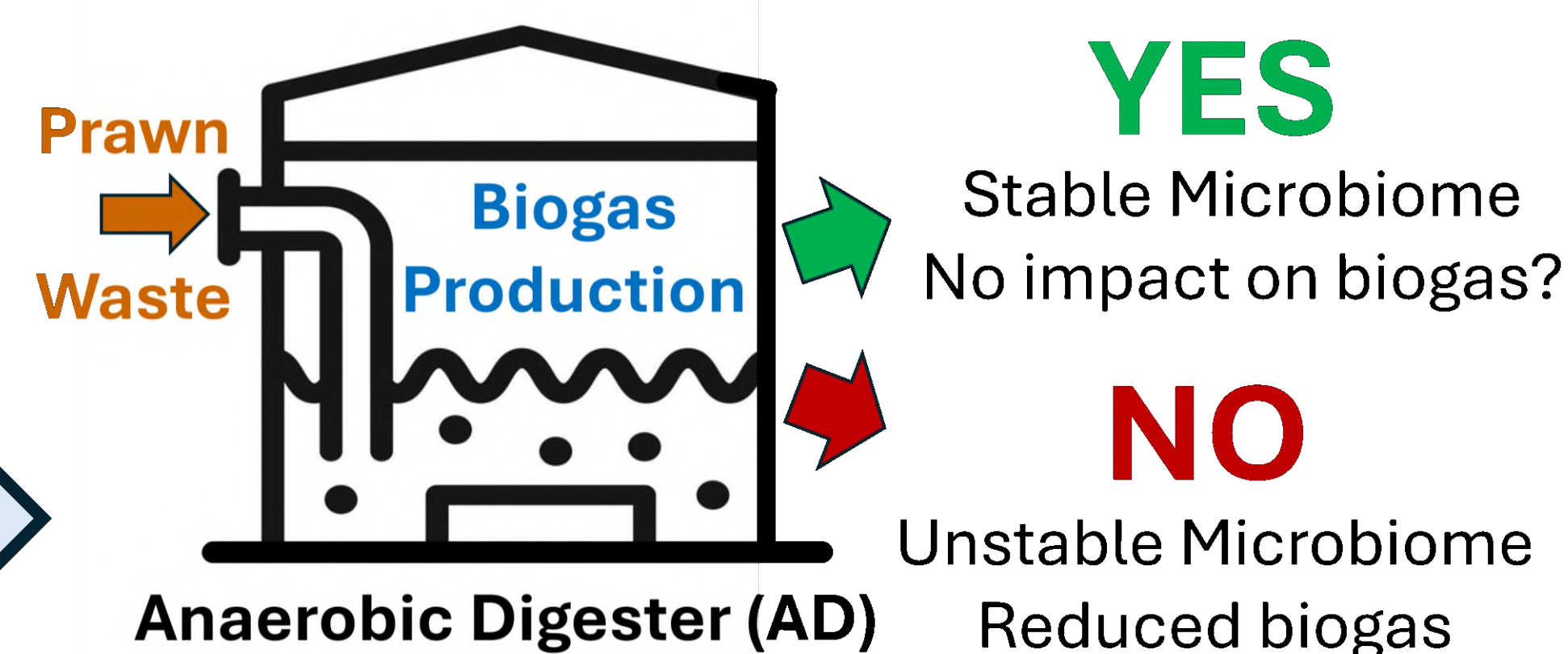
Follow-on Fund (BBSRC £600k)



UK Patent Filed 03/02/26: "Calcium Sensor" # 2602434.9



Prawn waste successfully used as soil enhancer for growing rye grass. Compatibility of prawn waste with anaerobic digester biogas production confirmed.

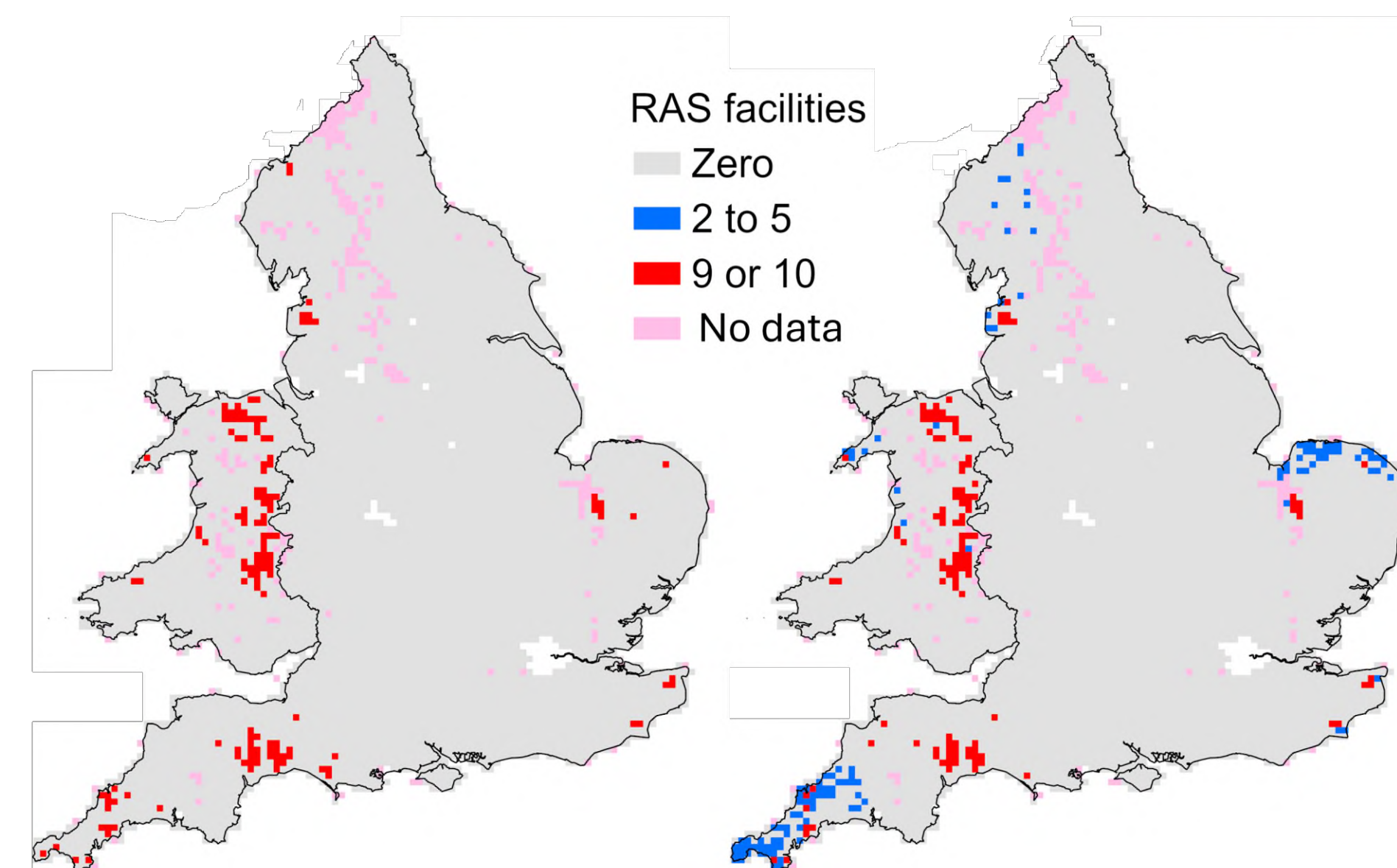


Trials at our **King Prawn Demonstrator** farm site (RASTECH): supplementary dietary vitamins improved prawn growth, productivity, health and environmental tolerances.

Indoor RAS king prawn farms generate 50 x more (and healthier) animal protein per hectare than beef livestock farming!



No subsidies CAPEX subsidies



Greater land-use efficiency means RAS prawn farms greatly facilitate land-sparing for nature positive food systems

Economic modelling shows > viability of prawn RAS in areas of low agricultural opportunity & employment costs, or alternative options. Small CAPEX subsidies expand viable farmland area.

Brown-field and urban sites with renewable energy options will expand options even further.

Watch UK King Prawn Farm Demonstrator video here

