

Power to the Parish



*Treating waste
naturally*



Longstock - Hampshire

450 people

750 cattle

65 horses

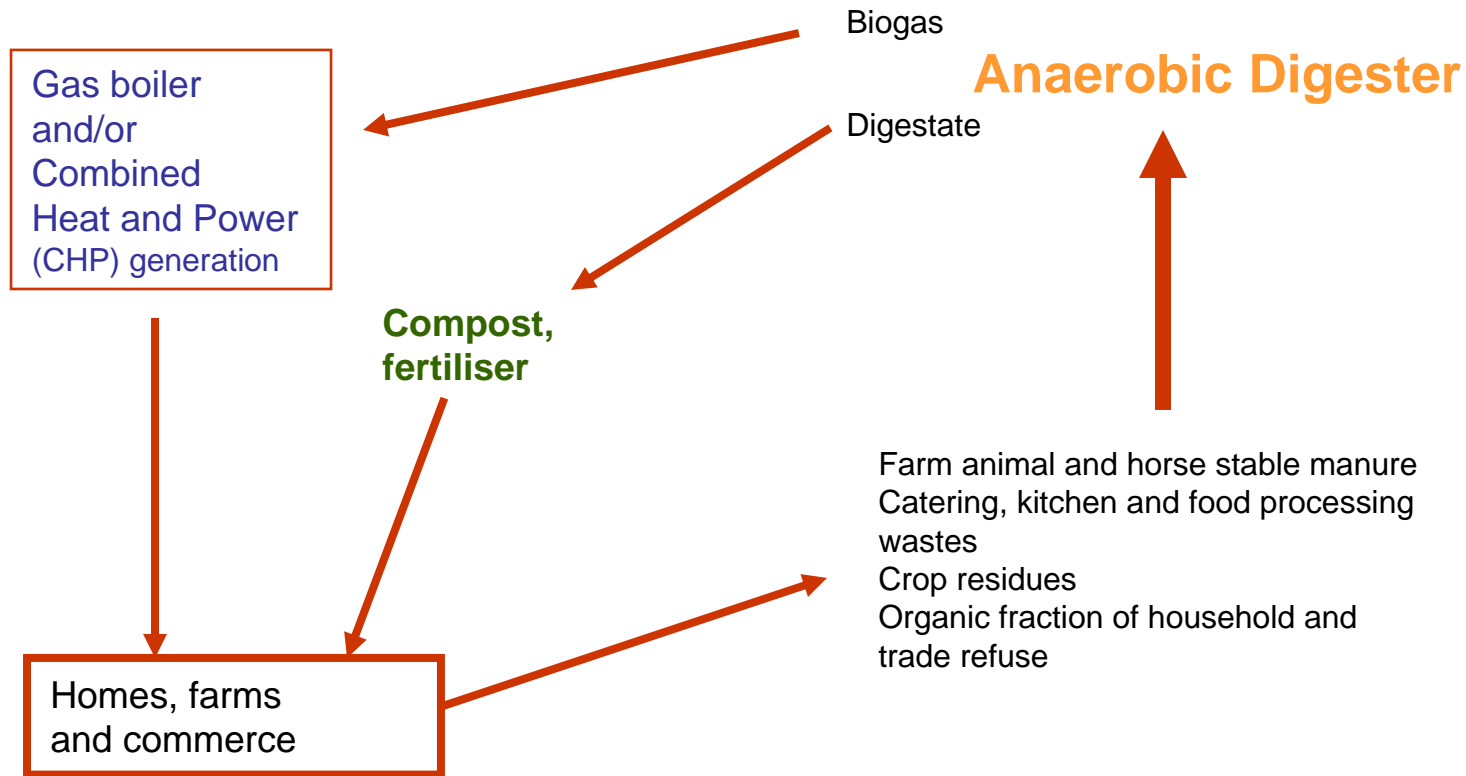
3000 acres

17000 trees



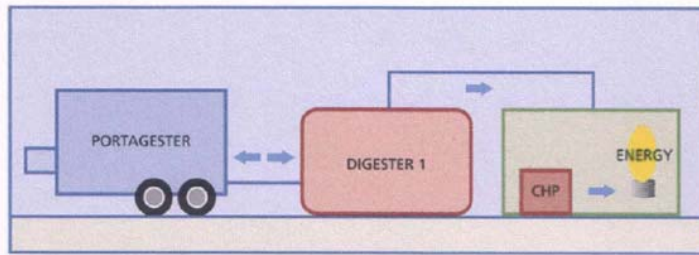
Materials and Energy Flow

Longstock Energy



Treating waste naturally

The Bioplex Process



Two Stage AD System



The Bioplex process uses as its first stage a modular anaerobic fermenter called the Portagester, which treats organic waste material in *less than three days*. It uses the process of thermophilic fermentation to pasteurise feedstock and naturally separate it into liquid and solid fractions.

The liquid can be used as a liquid fertiliser and/or for second stage anaerobic digestion. The anaerobic digester produces methane rich biogas, which can be used in a boiler or a combined heat and power (CHP) generator to generate electricity and heat.

The solid fraction is relatively odourless and can be safely spread onto farmland or composted.

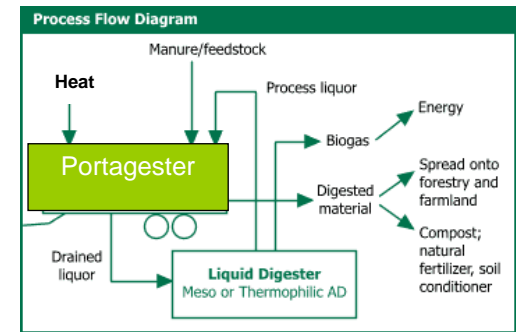
The composted material is an excellent natural fertiliser and growing medium.



The Bioplex Process

Other benefits were discovered:

- Parallel processing preventing cross-contamination.
- Ease of transport and reduction of materials handling.
- Smaller systems are viable, treat at source.
- Environmental advantages, nitrogen and carbon cycles
- Lower costs



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Fruit and vegetable waste treatment

1. Fruit and vegetable waste as received



The wastes are chopped to less than 20mm. The packaging enhances the final composting process and the end product.

2. Treatment by thermophilic digestion in a Portagester



The treatment of food wastes can meet EU and UK standards for ABPR. The temperature controls pathogens, weed seeds and parasites.

3. The end product after composting and screening



This digested material is a natural slow release fertiliser rich compost. The added fibre helps farmland to resist erosion and flooding.

Plant growth yield

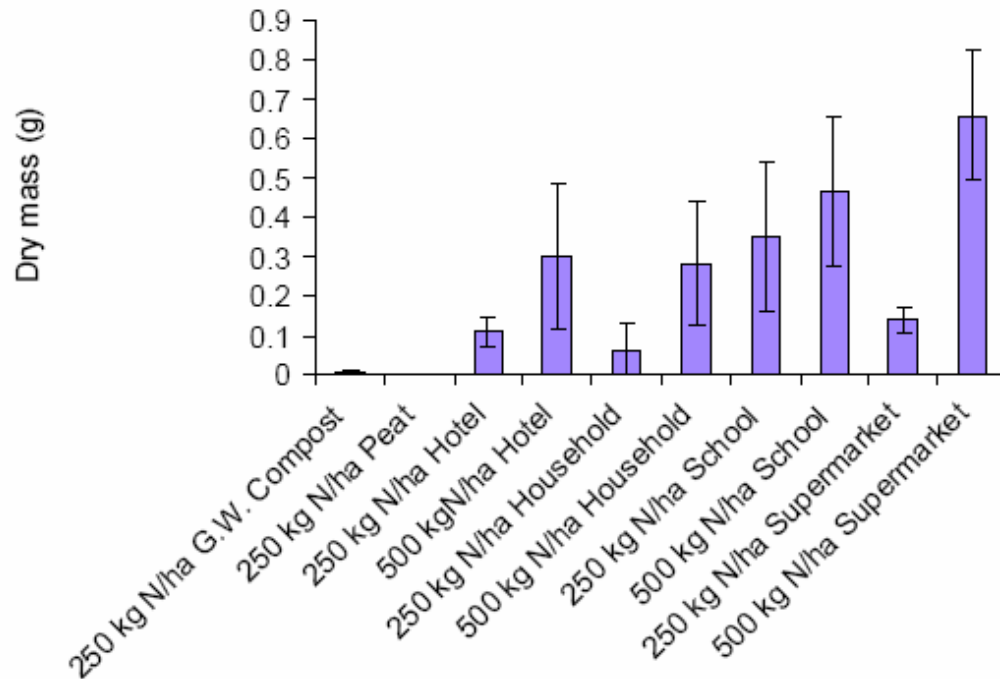


Figure 4.8 Mass of seedlings at harvest

WRc Ref. UC6698/13428-0
September 2004

Digestate - Plant Growth Trials



Controls

B&Q
compost

Peat

25 t/ha 50 t/ha

Household digestate

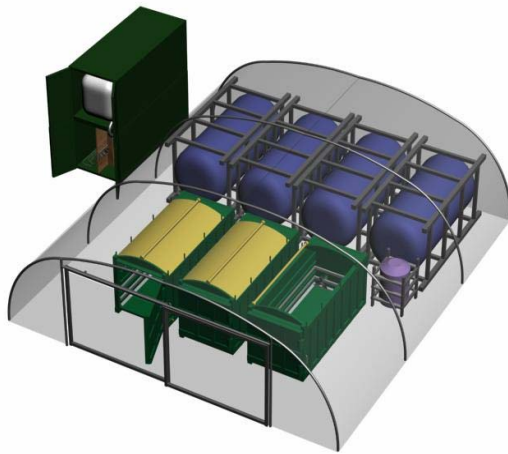
© WRc plc 2003

Are these
differences
just due to
nitrogen?



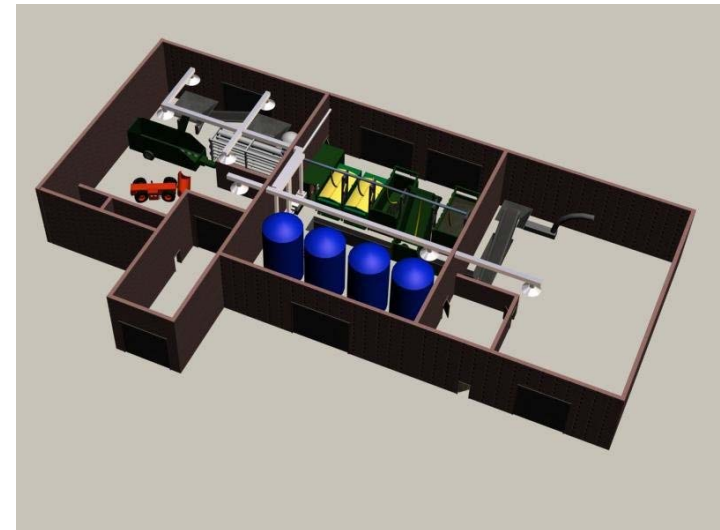
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**Village - Farm scale
Digester 5,000 tpa**



Modular system within
polytunnel for solar gain

**Community - Renewable
Energy and Natural Fertiliser
10,000 tpa**



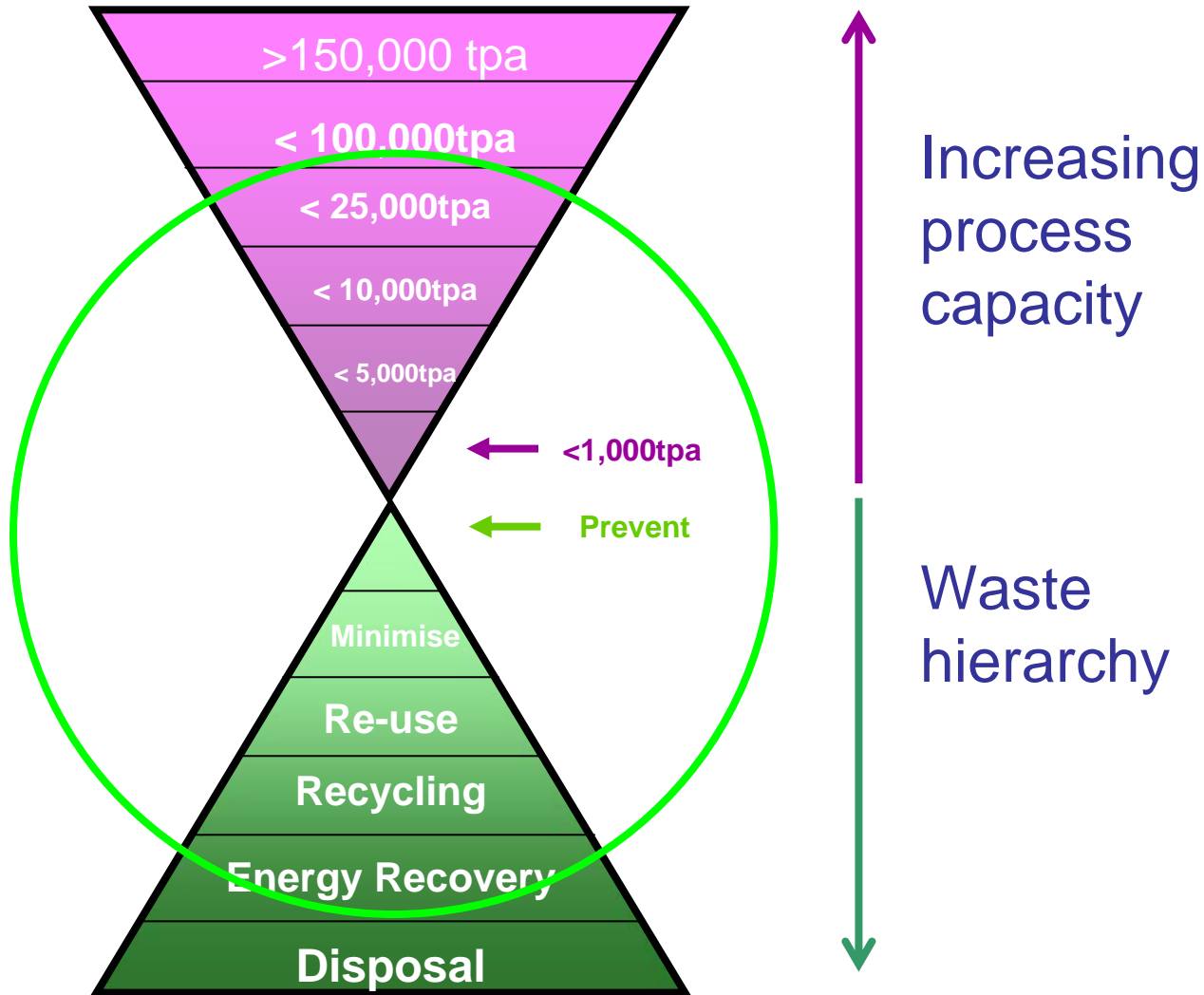
Designed for local organic waste
treatment

HMP Guys Marsh

- To treat catering waste and use the end product - biofertiliser, within the secure area.
- Biogas is used to generate electricity, including battery vehicles charging and heat.
- Process energy is exchanged from wood fired boiler and heating system
- The plant operation and gardening using the biofertiliser leads to new jobs and acquired skills. HMP Guys Marsh won the silver cup at the National Amateur Gardening Show 2008.
- Estimated five year payback period, based on 2007 waste disposal costs.
- Helps the site and the service to reduce its carbon footprint.



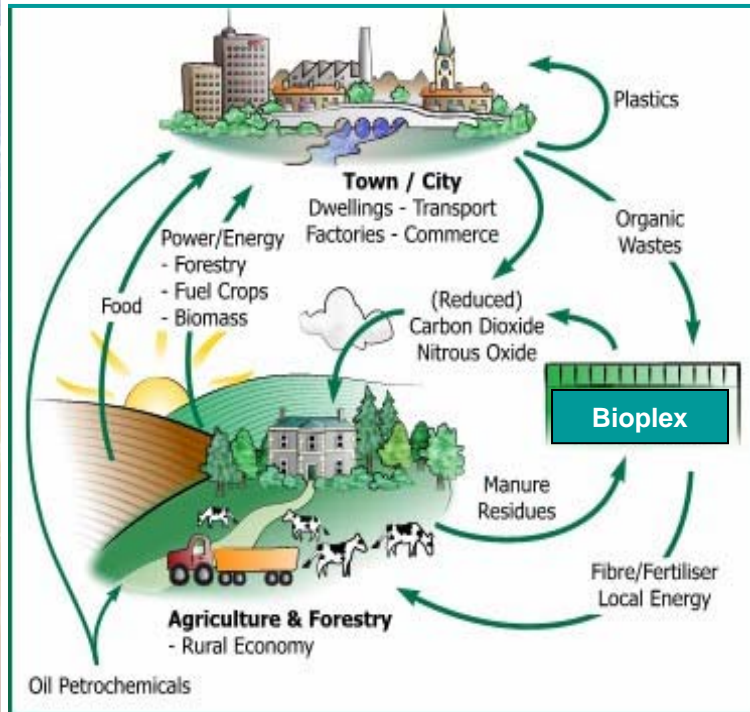
Choices of Waste Management



Treating waste naturally

The Bonus

Restoring the nitrogen and carbon cycles.



Carbon capture by the use of Anaerobic Digestion and Composting. At least 2 : 1

Carbon absorption by extra plant growth and benefits of replacing fossil fuels/petrochemicals.

Nitrogen cycle restored. (Over £1,000 tonne N).

Reduction in “waste miles”.

Local agriculture and horticulture uses recovered fertiliser and fibre.

Energy recovery.

Creates new business opportunities. Natural fertiliser + value added products.



A unique and proven rapid anaerobic digestion process for the treatment of organic waste streams into biofertiliser and biogas for energy.



- Carbon neutral
- Provides a renewable energy source
- Produces quality fibrous biofertiliser
- Rapid process
- Treats multiple waste streams
- Meets UK ABPR standards
- Controls pathogens, parasites and weed seeds
- Modular, mobile and static versions
- Low noise and low odour

For more information:

www.bioplex.co.uk

www.burdensenvironmental.com



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