

A hand is shown holding a piece of green lettuce, positioned over a green food waste bin. The bin is filled with various food scraps, including lettuce, carrots, and other vegetables. The bin has a white circular logo in the top right corner that reads "ZERO WASTE SCOTLAND". The background is a wooden surface.

**ZERO
WASTE
SCOTLAND**

Food Waste Recycling – Where are we now?

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Food Waste Recycling – Where are we now?

Content:

- Where it all began
- What has the journey looked like so far?
- What challenges do we still face?



Waste (Scotland) Regulations 2012



Where it all began -

We had

- Little infrastructure
- Up coming policies



Infrastructure

- Organics programme ~ 2008 (AD & IVC)
- Compost sites
 - 6 operating for food & garden waste (~170,000tpa)
 - ~30 taking garden waste only (~200,000tpa)
- AD handling food waste
 - 10 operating (~ 400,000 tpa, 2 are dry AD taking garden waste also)
- Industrial AD sites (approx. 13) – eg GSK & Distilleries
- Farm fed sites (approx. 53)
 - ~600,000 tpa (rye, grass silage, maize silage, energy beet, manures & slurries)

What has the journey looked like so far?

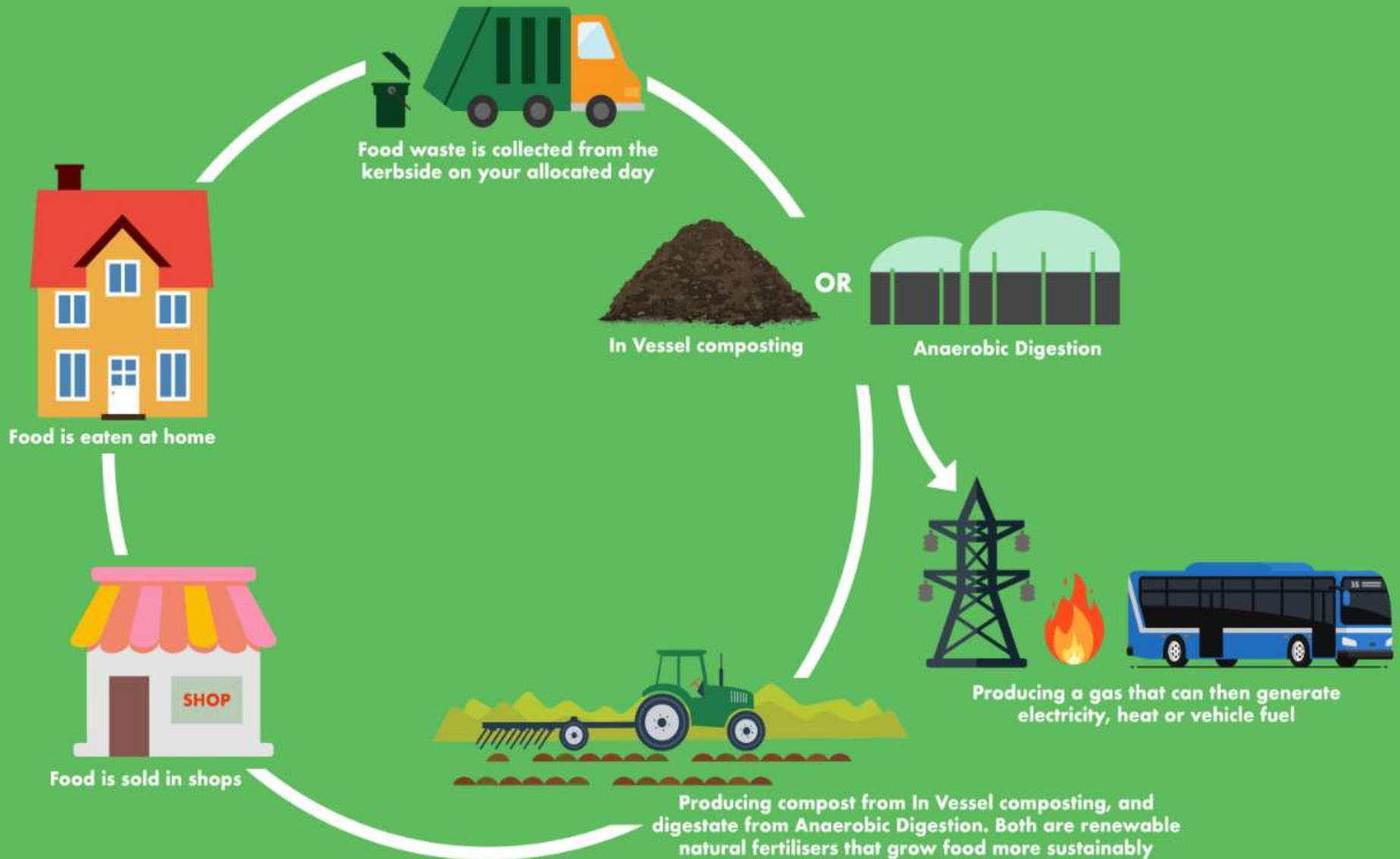
Put simply

- **Bumpy!**
- Most other countries used AD for maize & crops, not many for food waste.
- Markets for compost and digestate
- Contamination – recycling participation required

But first some background



What happens to your food waste?



All of your eggscompost in one basket..

- The problem - 99% of the market for compost and digestate is agriculture.
- Food-chain stakeholders prompted questions on the safety of composts and digestates.
- Response - a wide-ranging programme of evidence gathering funded by WRAP and then Zero Waste Scotland covering food, plant and animal pathogens, toxins and compound.
- It took over 7 years of work, evidence gathering, risk assessments, field trials, lab work and literature review

A few examples....

Toxic compounds present in plants

Ragwort (*Senecio jacobaea*)

Organic compound contaminants

PAHs (Polycyclic Aromatic Hydrocarbons); PCBs (Polychlorinated biphenyls); and PCDD/Fs (Polychlorobenzodioxins and Polychlorodibenzofurans)

Potentially Toxic Elements

Zn (Zinc); Cu (Copper); Ni (Nickel); Cd (Cadmium); Pb (Lead); Hg (Mercury); Cr (Chromium)

Pathogens and other organisms of relevance to animal health

Classical Swine Fever Virus (CSFV); Foot and Mouth Disease Virus (FMDV); Scrapie

Pathogens and other organisms of relevance to human health

Enterobacteriaceae (*E. coli* O157); *Salmonella* spp.; *Campylobacter* spp.; *Listeria* spp.; *Cryptosporidium parvum*

Pathogens and other organisms of relevance to crop health*

Potato cyst nematodes (PCN); Free-living nematodes (such as stubby root nematodes); Clubroot of brassicas; *Fusarium*; Potato pathogens such as Powdery and common scab, *Rhizoctonia*, Ring rot, Brown rot and *Phytophthora*.

Physical contaminants of relevance to human and animal health+

Glass; metal; plastic; non-stone fragments; stones; sharps.

Outcome



Table 6-1 The renewable fertiliser matrix

Cropping category	PAS110 digestates				PAS100 composts			
	Pasteurised ¹		Non-pasteurised		Green		Green/Food	
Fresh produce	Group 1	✓ Before drilling or planting ²	✗ NOT within 12 months of harvest and also at least six months before drilling or planting ²	✓ Before drilling or planting ²	✓ Before drilling or planting ²			
	Group 2	✓ Before drilling or planting ²	✗ NOT within 12 months of harvest and also at least six months before drilling or planting ²	✓ Before drilling or planting ^{2,3}	✓ Before drilling or planting ^{2,3}			
	Group 3	✓ Before drilling or planting ²	✓ Before drilling or planting ²	✓ Before drilling or planting ^{2,3}	✓ Before drilling or planting ²			
	Combinable and animal feed crops	✓ May be applied before and after drilling or planting ⁴	✓ May be applied before and after drilling or planting ⁴	✓ May be applied before and after drilling or planting ^{4,5}	✓ May be applied before and after drilling or planting ⁵			
	Grassland and forage – grazed	✓ Statutory no-graze intervals apply ⁵	✓ Three week no grazing period applies	✓ Three week no grazing period applies	✓ Statutory no-graze intervals apply ⁵			
	Grassland and forage – harvested	✓ Statutory no-harvest intervals apply ⁵	✓ Three week no harvest period applies	✓ Three week no grazing period applies	✓ Statutory no-graze intervals apply ⁵			

Notes

1. Derived from feedstocks that include Animal By-Products (ABPs), according to the requirements of the European Animal By-Products Regulations [Regulation (EC) No. 1069/2009 and Commission Regulation (EU) No. 142/2011, as implemented by the nations of the UK and Northern Ireland]. Pasteurised digestates also include those

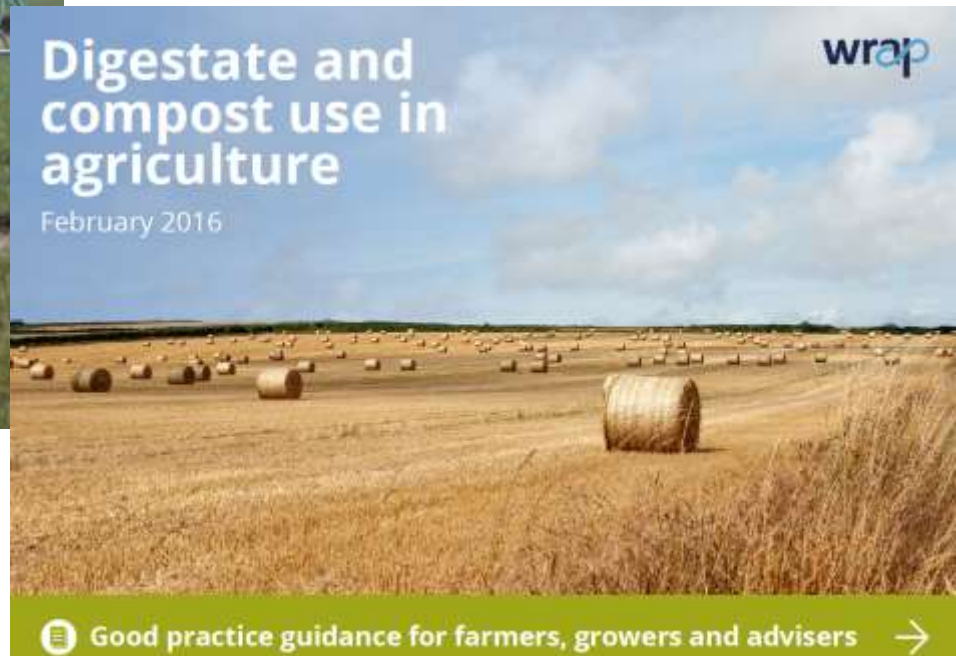
derived from inputs that have undergone prior processes equivalent to pasteurisation.
 2. Target of zero and absolute limit of <-0.1% (m/m dry weight) glass must be achieved.
 3. May be applied as a mulch
 4. No specific additional risk-management approaches are

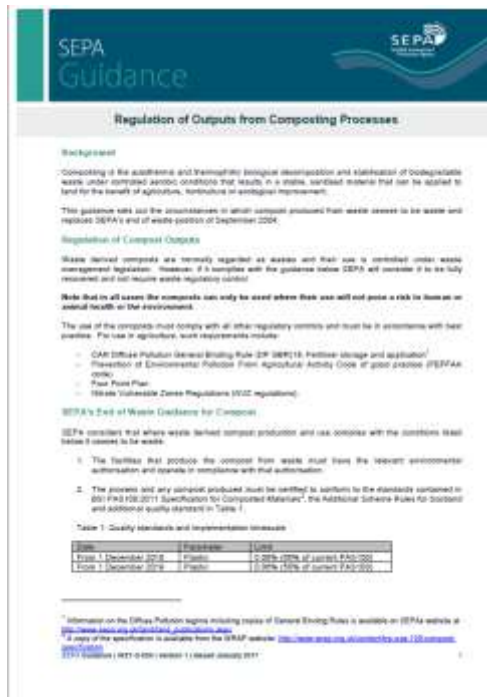
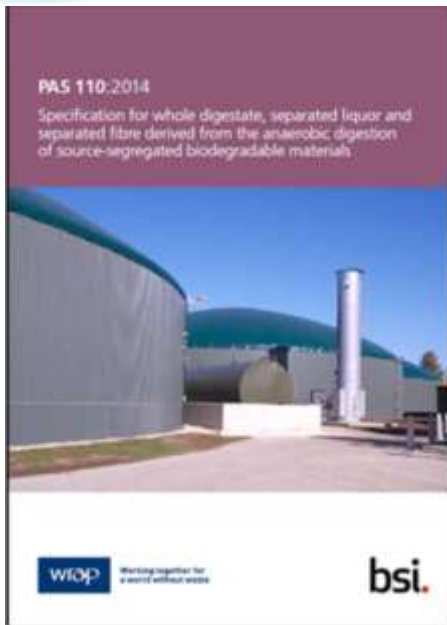
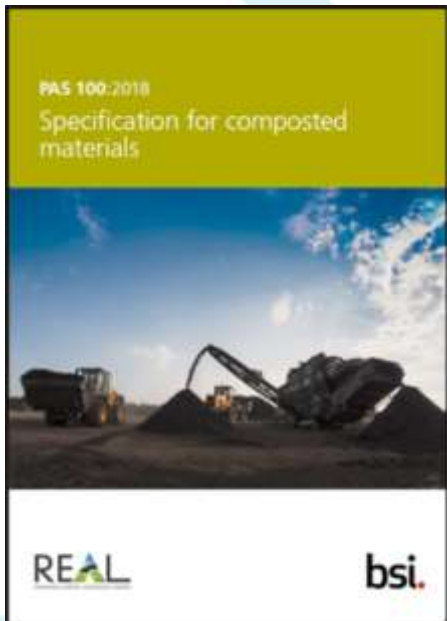
required for this cropping category, as regulatory and good practice requirements apply to this (and all other) categories
 5. In accordance with the Animal By-Products Regulations [see above]. These currently stipulate intervals of two months for pigs and three weeks for other livestock.

However there were some caveats....

- The farm assurance bodies wanted tighter restrictions on physical contaminants within both compost and AD.
- SEPA followed and incorporated these limits into their end of waste criteria as this is linked to market acceptance
- MUCH tighter than the baseline PAS requirements
 - Compost 50% of the PAS 100 limit
 - Digestate 8% of the PAS 110 limit
- Plants must produce this quality of material as a minimum
- Perception is still a big problem – home & international

Produced loads of guidance documents and videos eg





- Both layout the process, testing regimes, time and temperature controls etc for each material. The process is certified, not just the product.
- Both materials reach 'end of waste' status when certified and meet additional requirements noted by SEPA in their position statements.
- **PAS + End of waste = recycled**

Every link in the chain for food waste is crucial

.....and your recycling rate relies on all of this to

Government Policy

Householder

Food retailer

Local authority

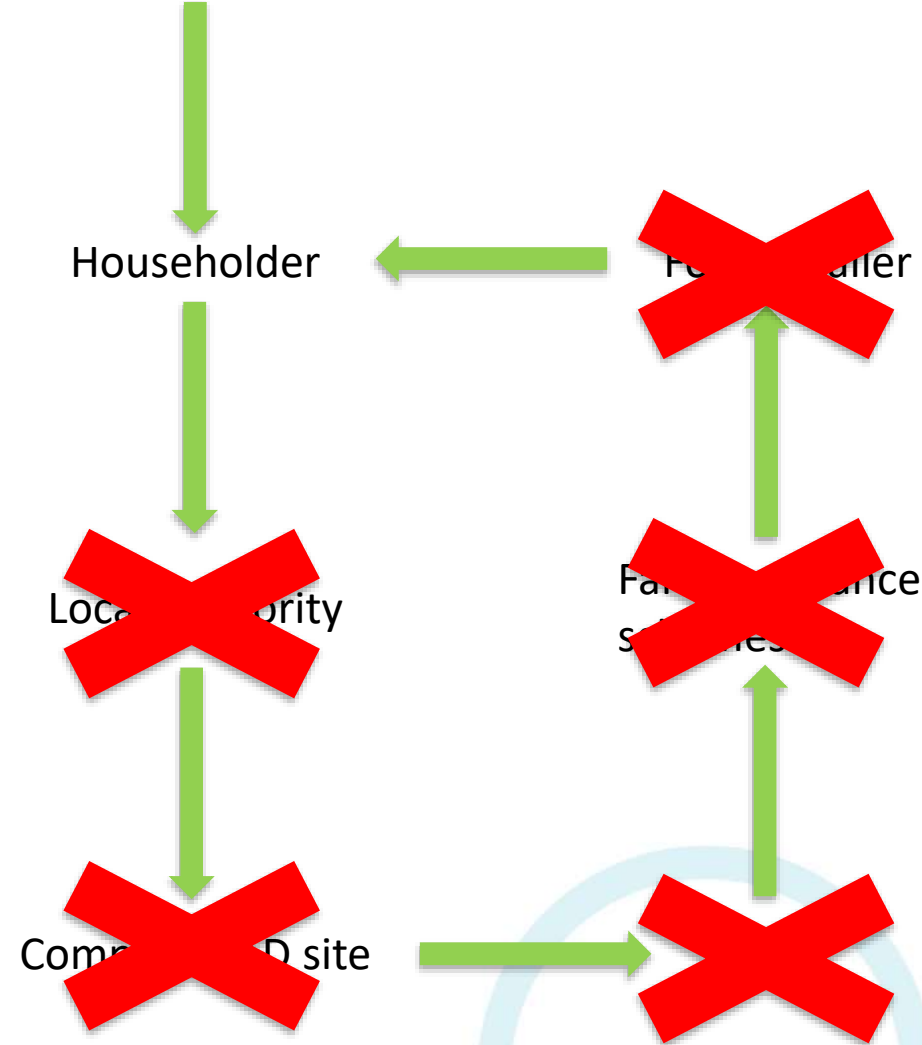
Food service

Composting site

Food waste processor

No market =
no SEPA end
of waste =
no recycling
rate for LA's

... what then??



What challenges do we still face?

- Contamination of feedstocks
- Getting more food waste out the landfill bin
- Lack of capacity in composting
- Limited available land and crops suitable for compost and digestate use

.....but also opportunities

- Reduce fossil based fertiliser use in farming
- Biorefining
- Innovation

Contamination



Food waste management in Scotland

Purpose

This Food Waste Management Guidance sets out the Scottish Environment Protection Agency's (SEPA) expectations across the food waste supply chain in order to achieve high quality recycling.

Only food waste managed in accordance with this Food waste management Guidance will fulfil the waste acceptance permit condition at food waste treatment facilities regulated by SEPA in Scotland.

Background

Section 34 of the [Environmental Protection Act 1990 \(as amended\) \(EPA\)](#) lays out a number of duties with respect to the management of waste. Waste must be managed correctly by storing it properly, only transferring it to the appropriate persons and ensuring that when it is transferred it is sufficiently well described to enable its safe recovery or disposal without harming the environment.

The [Waste \(Scotland\) Regulations 2012](#) amended Section 34 to implement a number of actions in the Scottish Government's Zero Waste Plan. Under these amendments, any person who produces or manages controlled waste (including food waste) has a legal duty to take all reasonable steps to ensure that the waste is managed in a manner that promotes high quality recycling.

The Food Waste Hierarchy

Section 34 (2A) of the EPA places a duty on all persons who produce keep or manage waste, to take all reasonable steps to apply the waste hierarchy.



Figure 1: Food waste hierarchy in Scotland

Preventing food waste across the supply chain is the preferred option in the hierarchy. Any food surplus should, where possible, be used by redistribution centres and foodstuffs no longer intended for human consumption may be suitable as a source of nutrition in the animal feed sector. The types and quality of former foodstuffs used in animal feed are strictly controlled by European and domestic legislation, enforced by animal health officers in Local Authority Trading Standards departments. Further information on the use of

Requirement for high quality recycling, including food waste:

- Obligations along the Food Waste Management chain:
 - Producer
 - Collector
 - Treatment facility
 - Farmer / land manager
 - Contractor

Not high quality recycling



Source: SEPA HH contamination survey 2019

Farmland must be safeguarded at all cost



What can we do - contamination?



- Work with your processing plant to see how you can work together on the issue of quality (comms etc)
- Ensure everyone knows the importance of removing contamination at source ie the householder – from councillors, staff, HH's etc
- Communicate to householders on an ongoing basis
 - Absolutely no packaging
- Spot check bins to see if any contamination is visible, if there is leave the bin unemptied – if it gets to the plant it's too late
- Ensure councillors etc are onboard with what you are doing to address the issue of contamination so they don't undermine any corrective action taken
- It cannot be left up to just the plant to remove contamination, there is no equipment that can remove all contamination

Thank you.

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