

Digestate use in the United Kingdom

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Digestate in context

- **Current use of animal manure, bio-solids and other organic material as fertiliser**
- **Movement/ trading of organic fertiliser between farms and imported from non – farm sources**
- **Methods of application**
- **Digestate takes its place – amount, application methods and crop use**

Organic fertiliser use on UK farms 2008 (76m tonnes) (% farms)

Farms not using manure, etc	31%	Poultry (layer & broiler)	5%
Cattle FYM	55%	Other FYM	1%
Cattle slurry	18%	Imported from other farms	2%
Pig FYM	3%	Biosolids (sewage cake)	2%
Pig slurry	1%	Other non farm	1%

Source: Defra (2009) The British Survey of Fertiliser Practice 2008

Imports from farm and non-farm sources

(million tonnes /yr)

Cattle FYM	0.7	Poultry (broiler)	0.2
Cattle slurry	0.1	Other FYM	0.0
Pig FYM & slurry	0.6	Other FYM	0.1
Poultry (layer)	0.6	Other non-farm	5.4

Source: Defra (2009) op.cit

Application of cattle slurry (% of farms)

Farm type	Broad- cast	Band spread	Injection	Other
Cereals	-	-	-	-
General cropping	70	25	25	0
Dairy	90	8	9	4
Other livestock	89	9	2	1
Pigs & poultry	-	-	-	-
Mixed	84	6	2	0
Pig manure	96	-	-	4

Source: Defra (2009) op cit

Estimating the tonnage of digestate



For farm based plants:

- Number of plants identified
- Based on tonnage input of plants less 15% reduction for biogas production

or

- Tonnage calculated from livestock numbers, hectare/yield of maize, etc with capacity of the digester

As yet there are no national figures

Organic fertilisers from AD



On farm manure



On farm mixed waste



On farm + food



On farm + energy crops

Food processors
Sewage sludge
only
Sewage sludge +
source separated
MSW



Off farm food, ABP etc

Estimated quantities currently applied to land ('000t/yr)

On farm:	No. of plants	'000 t
Manure only	17	8.9
Manure+ energy crops	8	80.0
Manure + ABP/ food ,vegetables, etc	6	120.1
No data available	8	-
Off farm (Vegetable processors, ABP, breweries etc, waste companies/LAs)	>6	142.4
Processor < 1% DM	1	Sewer
No data available	14	-
Waste water treatment + source separated MSW	220 220 +> ?	1,003.0 > 1,003.0

Liquids whole or separated: 26% use trailing shoes or injection, 20% broadcast (Splash plate) others 5%.

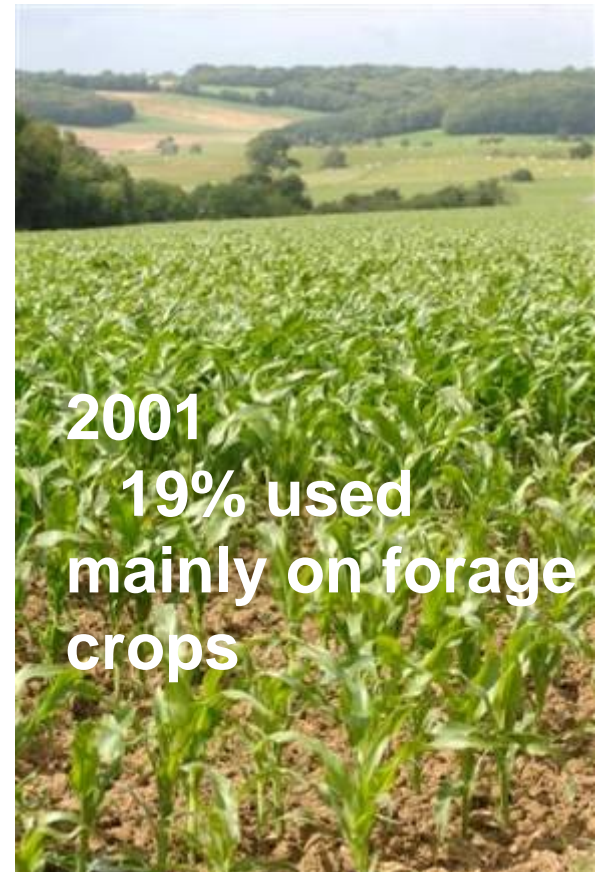


**Separated solids (farms) : Broadcast 31%
WWT bio-solids 97% broadcast 3% other
No of respondents: 25 (63% of known plants)
Some farms used more than one method**

Organic fertiliser used on crop and grass (% of land) in 2001 and estimated for 2010



**2010
36% digestate used on grass land
57% digestate on combinable crops, forage, energy maize & vegetables**



**Sources: Defra (2002) British Survey of Fertiliser Practice
Data provided by farmers & AD plants 2010**

Spreading “waste”

- Unless exempt or treated to become biofertiliser all digestate is a waste.
- Producers must only transport with waste carrier licenses
- Must only be spread subject to site licenses which are limited to 50ha blocks.
- Environment Agency charges fees and imposes delays when issuing spreading licences.

Regulations for farmers

- Keep to tradition –use manure, apply according to Code of Good Agricultural practice and NVZ regulation with no **AD –simple and easy**
- Exemption from waste regulations for AD if own farm manure and crops for own farm use applied for agricultural benefit in accordance with COGAP etc
- Any other case requires full waste permit and transfer approval unless
- AD plant registered and compliant with Biofertiliser certification scheme” – in which case digestate is no longer a waste.

Regulations for PAS110 Certification

- Covered by “Biofertiliser certification scheme”
- Feedstock must be from source separated origin (no mixed waste)
- AD must include full pasteurisation and testing of digestate
- Independent assurance of product quality.
- Details at www.biofertiliser.org.uk/

Putting a price on food waste (household, catering & supermarkets)

	N	P ₂ O ₅	K ₂ O
Total (kt)	71.2	22.6	3.4
Available N as NH₄-N (kt)	53.4		
Nutrient price (£/t)	680	640	580
Estimated value (£m)	36.3	14.4	2.0

% national consumption ? 8.0 12.2 1.3

Digestate meeting the crop need



When it needs it

Digestate is it worth it?

Crop need	NH₄-N	P₂O₅	K₂O
Tonnes	81.98	41.27	50.16
Digestate (t)	60.00	53.13	105.72

BUT Already applied nutrients from his own manure

	NH₄-N	P₂O₅	K₂O
	14.16	10.0	20.0
Saved purchase of	45.84	All	All

£ saving expenditure for N £31,171

Offset by extra spreading cost of £9,000

Net savings of £22,171 + opportunity to sell surplus P

Organisations supporting the UK membership of the IEA

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