Introduction

This paper states the views of the UK trade bodies that represent the biodegradable waste management sector: the Anaerobic Digestion and Bioresources Association, the Environmental Services Association and the Renewable Energy Association. Our views are a response to the European Commission intentions we are aware of for revision of the EU Fertilisers Regulation. These include the setting of end of waste criteria for composts and digestates derived from biodegradable wastes. We understand that such inclusion will result in any national EoW criteria with the same scope becoming superseded by the revised EU Fertilisers Regulation.

Section A - Key concerns

Our associations fully support the principle of End of Waste (EoW) criteria for biodegradable waste. The UK's existing EoW criteria and certification schemes [PAS100 (for compost) and PAS110 (for digestate)] and the respective Quality Protocols] have played a hugely important role in establishing markets and improving quality. However, if composts and digestates derived from biodegradable waste are included in the Fertiliser Regulations, it is essential that there is a smooth transition for operators who already comply with UK EoW criteria, that existing market demands are not ignored and that plants are not subject to disproportionate cost either in transition or ongoing compliance. We are particularly concerned about the proposal for two reasons:

1. **Insufficient risk based evidence** – The European Commission has on several occasions admitted that many of the limit values (safety requirements) proposed for the revised Fertilisers Regulation are not risk based (e.g. matched to known toxicity thresholds relevant to how the material will be used). Most limits relevant to composts and digestates seem to reflect a compromise between quality achieved by industries (by checking limited data) and differing limits in EU Member States' existing standards. In our view, this is not an acceptable way to set safety and quality criteria for fertilisers, soil improvers and growing media. It will exclude composts and digestates at least some of the time, despite them not exerting toxic effects and conferring agronomic/horticultural benefits. We therefore call on the Commission to first ensure that appropriate scientific research is done, sufficient industry data is collated and reviewed, and then set regulatory requirements.

2. **Variability of biowaste-derived products** – Organic fertilisers and soil improvers are produced from a range of feedstocks, mainly different types of food waste, green waste, manure, crop residues and in the case of digestates, energy crops. The amount of organic matter, organic carbon and nutrients in this feedstock varies seasonally and from year to year and some of this variation is reflected in the fully treated compost and digestate. In addition, concentrations of reserve and plant available nutrients already in the soil vary (both within and between the EU member states). Crop nutrient needs and rotations also vary. **Parameters relevant to agronomic/horticultural value should not be subject to minimum concentration requirements.** Instead, the revised regulation should require that concentrations of agronomic/horticultural value parameters are declared on the label / in product information. This will help users to compare different products and decide which product best suits their needs. Depending on needs and constraints (e.g. total nitrogen loading rate under Nitrate Vulnerable Zone rules) farmers can spread more or less of any given material.

   The quality requirements (e.g. minimum organic carbon applicable to organic fertilisers and organic soil improvers, and minimum nutrients applicable to organic fertilisers) should not be

based on limited statistics from selected databases on quality of composts and digestates. To date, we are not aware of much attempt to check seasonal and year to year variation experienced by individual plants, which will be greater than any variations in nutrient concentration in inorganic fertilisers (those manufactured from minerals).

3. **Greater disqualification than DG ENTR has anticipated -** We have heard that proposed (15th October 2014, at EBA workshop) minimum concentrations of organic carbon and nutrients were not adjusted when DG ENTR changed these from '% in dry matter' to '% in fresh matter' (the latter meaning 'in the commercial product' or 'as received'). Please see UK EoW digestate statistics in Annex 1, which indicate organic carbon and nutrient concentrations that can be expected.

   These most recent proposals would have serious, perverse consequences for the UK biowaste management sector. For example, DG ENTR's proposed minimum levels for organic carbon in organic fertilisers and organic soil improvers will disqualify all digestates (whole digestates and separated liquors) whose data we have analysed, these having been used as 'product' in UK markets. Nearly all of these digestates also would not qualify as organic fertilisers due to lower than DG ENTR's proposed minimum concentrations for total nitrogen, phosphate and potash (REA will send detailed, anonymised data analysis to DG ENTR as evidence underpinning these statements). The effects of disqualification from the revised EU Fertilisers Regulation and UK EoW becoming superseded could include higher gate fees charged by digestate producers, less food waste and garden waste being collected and more liquid digestate being spread on land as 'waste'.

We strongly urge the Commission not to specify EU End of Waste criteria (stand alone or within any other regulation) until;

1. evaluation of sufficient risk based evidence has been done,
2. data on the achieved quality of composts and digestates (solid and liquid) has been reviewed in depth (e.g. variations according to season, year, feedstocks and duration of treatment),
3. harmonised methods of test are available for each parameter and include repeatability and reproducibility data, and
4. a programme of laboratory performance assessment and 'approval for testing' can be completed before any transition period for compliance with EU EoW ends.

DG ENTR's process

Given the controversy over the JRC-IPTS recommendations[1] and concerns we have about intended revisions to the EU Fertilisers Regulation we call for opportunity to review and comment on a draft of the full proposals before the Commission finalises them.

[1] European Commission Joint Research Centre, Institute for Prospective Technological Studies, 2014, End-of-waste criteria for biodegradable waste subjected to biological treatment (compost & digestate): Technical proposals, Seville, Spain, Report EUR 26425 EN, ISBN 978-92-79-35062-7 (pdf).

Section B – Further comments

This section sets out some further comments on some of the topics covered in section 1 and includes a few other topics.

Our comments on the minimum and upper limit values proposed in the DG ENTR presentation at the EBA workshop on 15 October 2014 are stated in this section.

1. Safety criteria

Macroscopic impurities limits will apply to organic fertilisers (solid and liquid) and organic soil improvers (solid and liquid) derived from biodegradable wastes.

Parameter	DG ENTR's proposed limit	UK trade bodies' proposal	Justification
As	not applicable (tbc)	Not applicable	Not likely to be present at concentrations toxic to plants. Review available research.
Cd	1.5 mg/kg dry matter	1.5 mg/kg dry matter	Established EoW criterion in the UK
Cr VI	2 mg/kg dry matter	'Cr total': 100 mg/kg dry matter	Established EoW criterion in the UK. Cr VI believed to be very susceptible to breakdown in organic materials, therefore concentration likely to be very low or nil.
Hg	1 mg/kg dry matter	1 mg/kg dry matter	Established EoW criterion in the UK
Ni	50 mg/kg dry matter	50 mg/kg dry matter	Established EoW criterion in the UK
Pb	120 mg/kg dry matter	200 mg/kg dry matter	Established EoW criterion for composts in the UK[1].

1 Note to members: Commission's principle is to apply the same safety criteria to all product categories (mineral fertiliser, organic fertiliser, organic soil improver, other soil improver, growing medium). We hope there will be some origin based exceptions, such as no arsenic limit applicable to composts and digestates derived from source separated biodegradable wastes. The setting of heavy metal limits (and macroscopic impurities limits) on a fresh matter basis, at least for liquid digestates, is something that REA & ADBA have discussed at length with the EBA but they do not to support this approach. While this document is out for comment from members, REA will check the digestate data available via REAL's Biofertiliser Certification Scheme in terms of lead (Pb) concentrations in dry matter.

2. Macroscopic impurities

Macroscopic impurities limits will apply to organic fertilisers (solid and liquid) and organic soil improvers (solid and liquid) derived from biodegradablewastes.

Parameter	DG ENTR's proposed limit	UK trade bodies' comment
Polystyrene and films above 5mm	0.5%	Inappropriate to divide macroscopic impurities limits in this way. Additionally, the total is 1.8 % (assuming in dry matter) which is higher than in most EU Member States' quality standards.
Other plastics above 5mm	0.8%	
Glass and metal above 2mm	0.5%	

UK trade bodies' proposal		Justification
Parameter	**Limits**	
All macroscopic impurities (glass, metal, plastic) > 2 mm in any dimension	0.25 % in dry matter, within which polystyrene and plastic films do not exceed 0.12 % in dry matter. Separated liquid digestate exempt if all particles in this fraction are < 2 mm.	Established UK EoW criteria for composts (with amended description for sub-limit), less stringent than revised UK EoW criteria for digestates.

Note to members (for deletion from final version to be sent to Commission): We are aware that UK EoW limits are more stringent, especially in PAS 110:2014 (if limits on a fresh matter basis are converted to dry matter basis, using a selected dry matter content). Above we have proposed a single set of macroscopic impurities limits (which would apply to composts & digestates) because the Commission intends to apply the same limits to both categories 'organic fertilisers' and 'organic soil improvers' for any product that is derived from biodegradable wastes (with possible exception of treated manures, on their own or with energy crop).

3. Agronomic quality requirements

In section A we called for no minimum values for organic fertilisers and soil improvers and in section 4 below we have suggested a single category 'organic soil improver / fertiliser'; composts and digestates could belong to this category according to definition of being made from biodegradable wastes and produced by treatment of composting or digestion.

If DG ENTR continues to propose minimum values for organic carbon and nutrients, these should be set on a dry matter basis (% in dry matter).

3.1 Solid Organic Fertiliser (above 15 % DM)

Parameter	DG ENTR's proposed minimum	UK trade bodies' proposal	Justification
Min Corg (all)	10 % in fresh matter	No minimum. Declare concentration on % fresh matter basis ('as received') in labelling / product information	See section A and sub-section 4 in section B.
Min N (and/or)	1.5 % in fresh matter		
Min P_2O_5 (and/or)	0.5% in fresh matter		
Min K_2O (and/or)	0.75 % in fresh matter		

3.2 Liquid Organic Fertiliser (below 15 % DM)

Parameter	DG ENTR's proposed minimum	UK trade bodies' proposal	Justification
Min Corg (all)	5 % in fresh matter	No minimum. Declare concentration on % fresh matter basis ('as received') in labelling / product information	See section A and sub-section 4 in section B.
Min N (and/or)	1.0 % in fresh matter		
Min P_2O_5 (and/or)	0.3 % in fresh matter		
Min K_2O (and/or)	0.5 % in fresh matter		

3.3 Liquid Organic Soil Improvers

Parameter	DG ENTR's proposed minimum	UK trade bodies' proposal	Justification
Min Corg – organic soil improvers in liquid form	2 % in fresh matter	No minimum. Declare concentration on % fresh matter basis ('as received') in labelling / product information.	See section A and sub-section 4 in section B.
Min N	No minimum, declare in labelling.	No change	Not applicable
Min P_2O_5	No minimum, declare in labelling.	No change	Not applicable
Min K_2O	No minimum, declare in labelling.	No change	Not applicable

3.4 Solid Organic Soil Improvers

Parameter	DG ENTR's proposed minimum	UK trade bodies' proposal	Justification
Min Corg – organic soil improvers in liquid form	5 % in fresh matter	No minimum. Declare concentration on % fresh matter basis ('as received') in labelling / product information.	See section A and sub-section 4 in section B.
Min N	No minimum, declare in labelling.	No change	Not applicable
Min P_2O_5	No minimum, declare in labelling.	No change	Not applicable
Min K_2O	No minimum, declare in labelling.	No change	Not applicable

4. Distinction between 'organic soil improvers' and 'organic fertilisers'

Numerous recycled organic materials are beneficial to soils both as a fertiliser and as a soil improver; such materials include composts and digestates derived from source separated biodegradable wastes. Categorising products as 'organic soil improver' or 'organic fertiliser' is counterproductive and does not serve a worthwhile purpose. The categorisation highlights the existing problem of valuing soil improvement in the long term versus short term 'quick fix' nutrient input. If long- and short-term improvement is encouraged at the same time, both agronomic and environmental gains may be made from our soils and 'Good Agricultural and Environmental Condition' may be achieved.

UK industry is concerned that farmers will perceive 'organic soil improvers' as lower value than 'organic fertilisers'. This is partly because there are no existing studies which place a clear economic value on improved soil, even though some farmers who have repeatedly used compost at 'good practice' rates have found that soil cultivation is easier and some crops have produced marketable yields after periods of very little rainfall (when they otherwise would not have done). Due to these perceived differences in value according to product category name, if most digestates only qualify as 'soil improver' sales revenues will be adversely affected.

The categories are an artificial and unnecessary division; composts and digestates can both fertilise and improve soils. The extent to which any individual compost or digestate confers each of these benefits depends on its characteristics.

We suggest that 'organic soil improver / fertiliser' would be a suitable description for a single category, i.e. only one category under which composts, digestates and other organic soil improving/fertilising materials can qualify. Farmers will choose individual products after comparing offered products' values on a per fresh tonne basis, in terms of;

1. Fertiliser Replacement Value for primary and secondary nutrients (both in the short and longer term within the crop rotation),
2. organic matter (or organic carbon) content (particularly in improving soil characteristics and growing conditions),
3. potential liming value (to maintain or neutralise acidity to achieve optimum soil pH for the crops grown), and
4. additional trace elements the material may provide.

Please note: if DG ENTR is considering allowing composts and/or digestates with very low organic carbon content to qualify for the category 'inorganic fertilisers' it would remain possible to allow an alternative category 'organic soil improver / fertiliser' (all composts and digestates would aim to qualify for this latter category).

5. Declarations and identification

In labelling or documents associated with bulk supply of unpackaged organic fertiliser or soil improver, nutrient and organic matter (or organic carbon) concentrations should be declared in line with current fertiliser declarations on 'product as received' (fresh matter) basis not on a dry matter basis (the latter will confuse end users). Declaration on 'product as received' basis helps farmers to compare products. Information declared should also include whether the product is solid (not pumpable) or liquid (pumpable).'

6. Possible relevance of the 'inorganic fertilisers' category

Due to DG ENTR proposing organic carbon minima (on a fresh matter basis) which are too high for UK solid and liquid digestates, these resources would fail to qualify for use as product under the revised EU Fertilisers Regulation.

We are aware that at least one other stakeholder in Europe is likely to propose that the category 'inorganic fertilisers' be changed from a 'zero tolerance' for organic carbon content to a maximum value (e.g. 4.99 % in fresh matter) that is just underneath than the minimum organic carbon content required

in the 'liquid organic fertilisers' category (5.00 % in fresh matter). This would allow digestates to qualify as 'inorganic fertilisers' if their organic carbon content is too low to qualify as 'organic fertilisers'. This kind of provision could also be made if organic carbon minima become set on a '% in dry matter' basis.

Our comments on this issue are that:

- we prefer that composts and digestates can qualify for one single category 'organic soil improver / fertiliser and this category has no minimum organic carbon and nutrient criteria,
- if our preferred solution is not chosen and low organic carbon digestates are allowed to qualify as 'inorganic fertiliser' we do not want minimum organic carbon requirements in organic fertiliser and organic soil improver categories to remain as high as currently proposed; this would drive UK digestates into the category 'inorganic fertilisers'. Digestates do not have characteristics similar to artificial (mineral) fertilisers and would make the finding and choosing of inorganic fertilisers more complicated.

Note to members: should we delete this section, instead discussing this issue with DG ENTR at a later stage if they decide to allow low carbon digestates to qualify as 'inorganic fertilisers'?

7. Stability test and limit

Stablity criteria were not included in DG ENTR's presentation on 'Possible provisions on products deriving from digestates' at the EBA Meeting on 15 October 2014. JRC-IPTS has previously recommended inclusion of stability in End of Waste criteria for composts and digestates derived from biodegradable wastes. We understand from email exchanges that DG ENTR intends to include stability criteria applicable to fertilisers made from biodegradable waste (and any mixtures of allowed biodegradable waste and non-waste feedstocks).

Given that there is no Europe-wide, standard (harmonised) test for digestate stability, we believe the best option is to modify the JRC's proposed approach which would allow Members States to choose between different methods and associated, established limits (including the UK EoW Residual Biogas Potential test and limit for digestates).

In the case of the **Residual Biogas Potential test**, the UK's revised PAS110:2014 now sets a limit of 0.45 l biogas/g volatile solids. Digestate stability criteria in the Fertiliser Regulations should at least reflect this change. We prefer that the fertilisers regulation **just requires a 'stability test and limit set by the Member State competent authority'** because limits set in the regulation in 2015 will become out of date as scientific research progresses. Until harmonisation, guidance could be provided on suitable test methods, associated limits in use and the benefits and limitations of each.

Whichever is decided, until harmonisation is achieved it will be important to require that;

1. Each Member State competent authority chooses a single test and associated limit for digestate and a single test and associated limit for compost (to ensure fair competition between all producers of digestates and all producers of composts, with the Member State),
2. 'Materials being produced in one Member State and used or put on the market in a different Member State shall meet the requirements of both Member States for the stability criterion unless the receiving Member State recognizes the method of the producing Member State.' (excerpt from JRC-IPTS recommendations).

We envisage that future agreement of a harmonised test and limit is likely to be difficult due to:

- already not equivalent stability requirements (in Member States' respective standards and UK EoW criteria) and;
- differences between EU Member States who have already significantly invested in anaerobic digestion (mainly in terms of feedstock characteristics, typical processing, financial pressures and sustainability aims.)

8. **Seveso III directive**. The implementation of Seveso III in Member States from 2015 has potential implications for waste and non-waste digestates, which could be subject to controls for the first time, unless operators can prove that their digestates are below the thresholds for material to be categorised as an 'aquatic pollutant'. This should be considered in impact assessments for the Fertiliser Regulations, and the Commission should work to clarify whether there is a 'waste' exemption in Seveso III and if 'yes', to ensure that it applies to all anaerobic digestion sites, and not only landfill.

9. **Manufactured topsoils.** UK End of Waste composts have a good track record as an ingredient in manufactured topsoils and UK End of Waste solid digestates are allowed to be used in land restoration (which can include bringing manufactured topsoil onto the restoration site for use as the top layer material). Topsoil manufacture is usually done by companies who are not producers of composts and digestates, so some quantities are placed on the market and traded for topsoil manufacturing purposes. Placing compost / digestate on the market for this purpose does not involve claim that this resource is a fertiliser. In addition, users don't search for 'fertilisers' when they are trying to find suitable manufactured topsoils .

Please make clear whether each of the following will be within or outside the scope of the revised EU Fertilisers Regulation (rEUFR):

- placing compost / digestate on the market for use as an ingredient in manufactured topsoil
- placing on the market manufactured topsoil that includes compost / digestate as an ingredient

Please bear in mind that the UK has a detailed quality standard for manufactured topsoils (BS 3882). Our standard includes criteria for general purpose manufactured topsoils as well as different criteria for specific types of habitat, e.g. where soil is acidic or calcareous. If the rEUFR were to include manufactured topsoils then UK industry would want the regulation to recognise 'any publically available standard for manufactured topsoil recognised by the Member State competent authority or an equivalent standard'. We would not want the rEUFR to set inappropriate criteria for the range of manufactured topsoils that markets already use.

If the manufactured topsoil product category is outside the scope of rEUFR then UK industry will call for UK competent authorities to retain UK EoW criteria for composts and solid digestates placed on the market for use in topsoil manufacture. (We understand that UK EoW criteria with the same scope as rEUFR will become superseded by this revised EU regulation.) Notification to the European Commission would be made in due course, under requirements of the Technical Standards and Regulations Directive.'

Annex 1

Summary statistics ~ UK's Biofertiliser Certification Scheme (for digestates produced according to PAS 110, and AD QP in applicable UK countries)

Source: Renewable Energy Assurance Limited, data analysis by REA.

Statistics for UK whole digestates	Dry matter in % of FM	Organic matter in % of DM	Organic carbon in % of DM	Organic matter in % of FM	Organic carbon in % of FM	N in % of DW	N in % of FM	K2O in % of DM	K2O in % of FM	P2O5 in % of DM	P2O5 in % FM
90th percentile	5.26	76.00	30.40	3.56	1.42	15.78	0.60	5.44	0.21	2.92	0.11
Average (mean)	3.94	68.44	27.38	2.63	1.05	12.06	0.45	3.47	0.13	2.13	0.08
10th percentile	2.84	62.37	24.95	1.85	0.74	4.47	0.20	1.82	0.06	1.38	0.05
5th percentile	2.48	59.33	23.73	1.63	0.65	3.50	0.12	1.75	0.05	1.24	0.04
Minimum	1.05	50.78	20.31	0.69	0.28	1.01	0.01	0.64	0.03	0.52	0.02
DG ENTR minimum for liquid organic fertilisers	n/a	n/a	n/a	n/a	5.00	n/a	1.00	n/a	0.50	n/a	0.30
DG ENTR minimum for liquid organic soil improvers	n/a	n/a	n/a	n/a	2.00	n/a	n/a	n/a	n/a	n/a	n/a
Number of samples	159	123	123	123	123	116	116	150	150	150	150

Statistics for UK separated liquid digestates	Dry matter in % of FM	Organic matter in % of DM	Organic carbon in % of DM	Organic matter in % of FM	Organic carbon in % of FM	N in % of DW	N in % of FM	K2O in % of DM	K2O in % of FM	P2O5 in % of DM	P2O5 in % FM
90th percentile	6.27	75.00	30.00	3.72	1.49	20.93	0.44	10.25	0.30	1.72	0.07
Average (mean)	3.57	67.24	26.90	2.32	0.93	12.56	0.39	6.95	0.21	1.02	0.04
10th percentile	1.24	52.69	21.08	0.58	0.23	6.72	0.20	4.16	0.15	0.28	0.01
5th percentile	0.96	51.25	20.50	0.55	0.22	4.82	0.13	3.72	0.11	0.13	0.004
Minimum	0.31	46.61	18.64	0.28	0.11	2.86	0.10	3.34	0.04	0.06	0.00
DG ENTR minimum for liquid organic fertilisers	n/a	n/a	n/a	n/a	5.00	n/a	1.00	n/a	0.50	n/a	0.30
DG ENTR minimum for liquid organic soil improvers	n/a	n/a	n/a	n/a	2.00	n/a	n/a	n/a	n/a	n/a	n/a
Number of samples	33	28	28	28	28	25	25	25	25	25	25

Statistics for UK separated liquid digestates	Dry matter in % of FM	Organic matter in % of DM	Organic carbon in % of DM	Organic matter in % of FM	Organic carbon in % of FM	N in % of DW	N in % of FM	K2O in % of DM	K2O in % of FM	P2O5 in % of DM	P2O5 in % FM
90th percentile	37.15	90.22	36.09	22.11	8.84	7.73	1.52	0.43	1.51	0.38	15.36
Average (mean)	25.57	66.42	26.57	16.58	6.63	4.32	0.98	0.22	1.10	0.25	6.30
10th percentile	18.98	45.10	18.04	7.53	3.01	2.02	0.60	0.05	0.57	0.12	1.00
5th percentile	18.18	18.25	7.30	4.14	1.66	1.78	0.59	0.28	0.07	0.87	0.23
Minimum	8.68	14.16	5.66	3.48	1.39	1.35	0.55	0.23	0.04	0.72	0.23
DG ENTR minimum for solid organic fertilisers	n/a	n/a	n/a	n/a	10.00	n/a	1.50	n/a	0.75	n/a	0.50
DG ENTR minimum for solid organic soil improvers	n/a	n/a	n/a	n/a	5.00	n/a	n/a	n/a	n/a	n/a	n/a
Number of samples	26	23	23	23	23	23	23	23	23	23	23

Note: REA will further examine the UK compost data whilst this document is out for consultation. Statistics from such data are not included here.