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EBA's comments to COM 2016/0084 – Fertilisers Regulation Proposal

Dear DG Grow,

The European Biogas Association (EBA) strongly supports the inclusion of organic fertilisers and soil improvers within the Fertilisers Regulation. Our sector sees this revision as a unique opportunity to create a level playing field between organic and mineral fertilising material, giving digestate the possibility to join the European market as a CE marked product and continue developing in the future. EBA welcomes in particular the inclusion of End-of-Waste within Article 18 as well as the endpoint for certain animal by-products beyond which they are no longer subject to Regulation (EC) No 1069/2009 under Article 45. These two measures are essential to avoid barriers and overlaps with other EU legislation. Moreover, we strongly welcome the inclusion within this proposal of two different component material categories for digestate.

We also positively acknowledge that this is being done under the Circular Economy Package, which brings attention to a technical (yet important) revision, while also highlighting the benefits that organic products bring to sustainability, nutrient recycling, reducing import dependence, mitigating GHG emissions and creating new green jobs. Anaerobic digestion plays a very important role within a circular economy as it is the best option for treating organic wastes and by-products, while respecting biomass cascading, to produce renewable energy and organic fertilisers from it, thereby moving towards a circular model without waste. Although the proposal's architecture puts organic fertilisers at the centre stage, EBA and its members find it incomprehensible that the current product quality requirements in the annexes are so demanding that, in effect, they exclude raw digestate (we define this later in our response) as well as the separated liquid and solid fractions. This is the case for the organic fertiliser category (PFC 1) because the nutrient and organic carbon requirements are set on a fresh matter basis; similarly the organic soil improver category (PFC 3) has a too high minimum requirement for organic carbon in fresh matter and a very high minimum dry matter content of 40 %. To solve this and ensure that digestate falls within the Fertilisers Regulation, EBA proposes the following two key recommendations:

- **Adopt achievable criteria for product function category PFC 1 (A) so that liquid and solid digestate also can become a CE marked organic fertiliser**
- **Adopt achievable criteria for product function category PFC 3 (A) so that liquid and solid digestate also can become a CE marked organic soil improver**

Short introduction on digestate fertilising properties

Raw digestate is a rather bulky organic fertiliser which is usually applied with special slurry tankers to supply nutrients needed by plants. While its water content might seem high compared to conventional fertilisers, vast amounts of nutrients and organic carbon can be recovered from it at a very competitive price for customers. Below in Table I are the average figures taken from over 2000 raw digestate samples from across Europe. Table II shows total amounts of nutrients and organic carbon which are commonly applied when raw digestate is used.

Main nutrient content of raw digestate n > 2 000				
		10 % quantil	average	90 % quantil
[%]	DM	3	6	9
[% of DM]	VTS in DM	55	69	82
	N_{total}	5	10	18
	NH₄ N	2	6	13
	K₂O	2	5	8
	P₂O₅	2	3	5
[% of FM]	C_{org}	0,6	2	3
	N_{total}	0,13	0,3	0,5
	NH₄ N	0,04	0,2	0,4
	K₂O	0,06	0,14	0,23
	P₂O₅	0,05	0,1	0,15

Table I:

The table shows the main nutrient content of raw digestate (which results from digestion but is not separated, not dried, not concentrated...) based on dry matter content in the upper half and converted to fresh matter content in the lower half. As requirement was changed from VTS to C_{org}, we multiplied VTS by 40 % to become an estimation about C_{org} content.

Application of 25 m ³ raw digestate brings				
	10 % quantil	average	90 % quantil	
	[kg ha ⁻¹]			Max. biannual application load in Austria (fertilizer reg.)
C_{org}	152	384	740	
N_{total}	33	72	123	
NH₄ N	11	44	91	
K₂O	14	35	57	
P₂O₅	11	25	37	
	[g ha ⁻¹]			
Cr	4	21	58	600
Cd	0.1	0.5	1	10
Pb	1	8	22	600
Hg	0	0.1	0.4	10
Ni	4	19	49	400

Table II:

The example shows the amounts of nutrients and heavy metals within 25 m³ of raw digestate, compared to heavy metals application limits in Austria.

Although higher total application amounts are needed for plant nutrition, the contaminants load is usually far below national limit values.

The composition of **raw digestate** (in Table II above), is different from other kinds of digestate. Below are two tables showing over 100 samples of separated digestate: Table III shows the **liquid fraction** and Table IV shows the solid fraction.

Liquid fraction of separated digestate n > 100				
		10 % quantil	average	90 % quantil
[%]	DM	1,7	5,4	8,9
[% of DM]	VTS in DM	55	68	79
	N_{total}	6	12	19
	NH₄ N	3	7	14
	K₂O	5	10	13
	P₂O₅	2	3	5
[% of FM]	C_{org}	0,37	1,5	3
	N_{total}	0,1	0,2	0,3
	NH₄ N	0,05	0,1	0,2
	K₂O	0,08	0,17	0,22
	P₂O₅	0,02	0,05	0,08

Table III:

The main nutrient and C_{org} content of the liquid fraction of separated digestate is illustrated in this table. The upper half is based on dry matter and the lower half on fresh matter.

Solid fraction of separated digestate n > 100				
		10 % quantil	average	90 % quantil
[%]	DM	20	39	86
[% of DM]	VTS in DM	52	74	91
	N_{total}	2	3	5
	NH₄ N	0	0,4	1
	K₂O	0,8	3	7
	P₂O₅	1	3	6
[% of FM]	C_{org}	4	11	31
	N_{total}	0,35	0,6	1
	NH₄ N	0,01	0,1	0,2
	K₂O	0,15	0,5	1
	P₂O₅	0,2	0,6	1

Table IV:

The main nutrient content of the solid fraction of separated digestate based on dry matter content and converted to fresh matter content.

This solid fraction of digestate may also contain dried digestate, which results from further processing to reduce the water content.

At the moment none of the three digestate categories described above (i.e. raw, separated liquid and solid fractions) can meet the proposed criteria to become a CE marked organic fertiliser. Keeping these criteria the same would be a lost opportunity for Europe’s Circular Economy and the EU single market.

Therefore, EBA together with the support of its members kindly recommends to make following changes as described below.

Annex I: Product Function Categories (PFC):

PFC 1 A I + II: Organic Fertiliser

- Nutrient and organic carbon requirements for organic fertiliser**

It is essential to set the nutrient requirements as percentage, by mass, of the product’s dry matter content. This would enable a direct link with other criteria set in this regulation like heavy metals and impurities, which are all measured in dry matter. Labelling is a different matter, where EBA supports expressing all values relevant to customers in fresh matter.

As shown above, digestate cannot reach the set criteria based on fresh matter. Our main request is to **change the nutrient and organic carbon requirements from percentage in fresh matter to percentage in dry matter**. This would not only make this regulation more coherent, but it would also bring digestate into the Fertilisers Regulation. If this is not possible and nutrient requirements have to be taken in fresh matter, we propose as an alternative to change the mentioned PFC 1 (A) criteria to those shown in the table below.

	<u>PFC 1 A I:</u> solid organic fertilizer	<u>PFC 1 A II:</u> liquid organic fertilizer	<u>PFC 1 A I:</u> solid organic fertilizer	<u>PFC 1 A II:</u> liquid organic fertilizer
	[% of DM]		[% of FM]	
DM	≥ 20	< 20	≥ 20	< 20
N	1.5		0.35	0.05
P₂O₅	0.5		0.2	0.04
K₂O	0.75		0.15	0.06
C_{org.}	20		4	0.2

Only one main nutrient requirement needs to be achieved.

- **Contaminants in organic fertilisers**

The majority of digestate is below the limit values proposed for heavy metals, which EBA sees as appropriate. Moreover, Biuret is not likely to be present in digestate at concentrations toxic to plants, particularly given the proposed minimum stability requirements applicable to digestate. The JRC-IPTS study did not identify biuret as a substance of concern in organic fertiliser and therefore did not recommend limit values for this chemical in its report. Biuret is not being analysed in digestate in any of the large organic fertilisers markets and we see no need for analysing it in future nor for setting redundant limit values within PFC 1 (A) of the revised EU Fertilisers Regulation. Therefore we kindly ask to delete Biuret from the list of contaminants which have to be analysed and to delete the Biuret limit values.

PFC 3 A: Organic Soil Improver

Digestate not only contains valuable nutrients, it is also a very effective soil improver with humus-forming organic matter which helps activate and improve the soil, like compost. For example 25 m³ digestate brings on average 400 kg C_{org.} to soil.

The requirements for percentage of dry matter and organic carbon in points 4 and 5 respectively are well above the corresponding values for raw digestate, as well as for the liquid and solid separated fractions. In order to be able to include this valuable soil improver in the Fertilisers Regulation, EBA suggests creating two subcategories for organic soil improvers (solid and liquid), as is already the case for organic fertilisers, with the DM and C_{org} values illustrated in the table below. All other requirements can remain as they are in the current proposal.

	<u>PFC 3 A I:</u> solid organic soil improver	<u>PFC 3 A II:</u> liquid organic soil improver
DM	≥20%	<20%
C_{org} in DM	20 %	20 %
C_{org} in FM	4%	0.35%

Annex II: Component Material Categories

CMC 4: Digestate from energy crops:

- **Add Manure and crop residues as allowed feedstock under point 1:**

Energy crops are mostly digested combined with other crop residues and manure to optimise environmental benefits with the highest methane yields. Only very few plants in Europe have mono-digestion of energy crops which would qualify under the current CMC 4 category. In view of this and the environmental significance of digesting manure, crop residues and energy crops, EBA strongly recommends the adding of manure and crop residues under point 1 as an input material, using the following definition in EC Regulation 1069/2009:

“(c) any excrement and/or urine of farmed animals other than farmed fish, with or without litter”

“(d) crop residues directly from agriculture”

In order to be consistent, the title of CMC 4 should be changed to *“ENERGY CROP, CROP RESIDUES AND MANURE DIGESTATE”*.

- **Delete the requirement of 20 days retention time within point 3 a:**

There are already digesters in operation which have a retention time below 20 days including a sufficient sanitation result like UASB reactors (Upstream Anaerobic Sludge Blanket), EGSB (Expanded granular sludge bed digestion) etc. To include also these types of digesters and not to hinder further technological developments please delete under point 3 a) the phrase

“and a hydraulic retention time of at least 20 days”

- **Change the temperature profile from 55 °C so that also higher temperatures are allowed within point 3 a, b, c:**

Thermophilic digestion processes do not only take place at exactly 55 °C but also at higher temperatures. To allow this, the word “at” before “55 °C” should be changed to

“at least” within point 3 a, 3 b and 3 c.

- **Delete the upper limit temperature of mesophilic digestion within 3 d and 3 e:**

Many operators of mesophilic digestion plants use a temperature slightly above 40 °C for the digestion phase and this does not cause any negative impact. At the moment the set upper limit temperature of 40 °C would exclude many mesophilic plant operators. We therefore ask to delete the upper limit temperature within 3 d and 3 e and use instead the following phrases:

“3 (d) Mesophilic anaerobic digestion above 37 °C with a treatment process including a pasteurisation step (70 °C – 1h) or sustaining the minimum digestion temperature during at least 24h”

“3 (e) Mesophilic anaerobic digestion above 37 °C followed by composting in ...”

- **Delete the obligation of moving within point 3 for digestate:**

Anaerobic digestion can be done in stirred digesters but also in batch digesters where the feedstock is not moved during digestion. The time temperature requirements will be fulfilled. In order to digest solid inputs such as bovine or equine manure and shredded organic waste, some new process are tested. They consist of “batch AD” and are often termed ‘dry digestion’. Each batch is introduced in a silo or enclosed vessel and sprayed with liquid percolate which is pumped in a closed circle. After the digestion took place (including collection of gases generated by the microbes), the whole batch is removed from the silo/vessel. There is no movement of the batch while it is in the silo/vessel.

To include also these types of digesters and not to hinder further technological developments please add in bracket following phrase directly after “3. All parts of each batch shall be regularly and thoroughly moved”

“(apart from the use of batch digestion processes and apart for postcomposting processes with active aeration)”

CMC 5: Other digestate than digestate energy crop digestate:

As explained above under CMC 4, we suggest modifying the following points:

- **Delete the requirement of 20 days retention time within point 3 a:**

There are already digesters in operation which have a retention time below 20 days like UASB reactors (Upstream Anaerobic Sludge Blanket), EGSB (Expanded granular sludge bed digestion) etc. To include also these types of digesters and not to hinder further technological developments please delete under point 3 a) the phrase

“and a hydraulic retention time of at least 20 days”

- **Change the temperature profile from 55 °C so that also higher temperatures are allowed within point 3 a, b, c:**

Thermophilic digestion processes do not only take place at exactly 55 °C but also at higher temperatures. To allow this the word “at” before “55 °C” should be changed to

“at least” within point 3 a, 3 b and 3 c.

- **Delete the upper limit temperature of mesophilic digestion within 3 d and 3 e:**

Many operators of mesophilic digestion plants use a temperature slightly above 40 °C for the digestion phase and this does not cause any negative impact. At the moment the set upper limit temperature of 40 °C would exclude many mesophilic plant operators. We therefore ask to delete the upper limit temperature within 3 d and 3 e and use instead the following phrases:

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- **Delete the obligation of moving within point 3 for digestate:**

Anaerobic digestion can be done in stirred digesters but also in batch digesters where the feedstock is not moved during digestion. The time temperature requirements will be fulfilled. In order to digest solid inputs such as bovine or equine manure and shredded organic waste, some new process are tested. They consist of “batch AD” and are often termed ‘dry digestion’. Each batch is introduced in a silo or enclosed vessel and sprayed with liquid percolate which is pumped in a closed circle. After the digestion took place (including collection of gases generated by the microbes), the whole batch is removed from the silo/vessel. There is no movement of the batch while it is in the silo/vessel.

To include also these types of digesters and not to hinder further technological developments please add in bracket following phrase directly after “3. All parts of each batch shall be regularly and thoroughly moved”

“(apart from the use of batch digestion processes and apart for postcomposting processes with active aeration)”

Annex IV: Conformity Assessment procedures

Part one: Applicability of conformity assessment procedures

- **Include manure and crop residues within CMC 4 Energy Crop Digestate**
Please add under point 1 b) after the word “crop” the phrase “,crop residues directly from agriculture *and manure*”

REACH: Amendment of Guidance for ANNEX V Entry 12:

At the moment it is not clear if digestate is exempted from registration under REACH or not. To make clear that digestate has not to be registered under REACH amendment V, ENTRY 12 of the Guidance should be amended through an own article in the EU Fertilisers Regulation:

Article xx

Amendment to Guidance on Annex V, Entry 12 of Regulation (EC) No 1907/2009

- (1) The title is replaced by the following:
“Compost, biogas and digestate”
- (2) The first two paragraph are replaced by the following:
“This exemption covers compost and digestate when it is potentially subject to registration, i.e. when it is no longer waste according to Directive 2008/98/CE, and is understood as being applicable to substances consisting of liquid and solid particulate material that have been sanitised and stabilised through the action of microorganisms and that result from treatment by composting, digestion or a combination of both.

This explanation is without prejudice to discussions and decisions to be taken under Community waste legislation on the status, nature, characteristics and potential definition²² of compost and digestate, and may need to be updated in the future.”

Nitrate directive: Harmonisation is needed:

Anaerobic digestion plays an important role in enhancing nutrient availability / nutrient use efficiency of nutrients coming from animal manure. Thanks to advances in digesting manure and possibly post-treatment of digestate this has the definite potential of creating derivatives coming originally from manure yet converted to higher forms of biobased fertilising products. However, under current interpretations of the Nitrates Directive Art. 2(g), upgrading animal manure via anaerobic digestion (and optionally digestate post-treatment) makes it impossible becoming a fertilising product compared to mineral fertiliser as the newly formed products indefinitely retain the status of ‘animal manure’.

The maximum allowable level of nitrogen to be spread under the legal status of ‘animal manure’ is limited to 170 kg/ha. Farmers top this up by using mineral fertilisers satisfying different plant demand. In practice, this implies that digested animal manure and derived products retaining that legal status suffer from a negative legislative value, whereas in the same regions mineral fertiliser utilisation is the highest across EU regions since farmers are allowed to top up crop requirement with fossil-based mineral fertilisers. This creates an imbalance in the market as one type of fertiliser is disadvantaged against another. Without level playing field between fertiliser products, the market will continue to be biased by EU policies favouring (less sustainable) fertilisers from fossil resources over biobased alternatives coming from digested animal manure.

As processed manure via digestion has lower share of organic fixed nitrogen and a higher share of Ammonium N and therefore a comparable nutrient release as mineral Nitrogen we ask for following changes:

Article xx

Amendment of Nitrate Directive No 91/676/EWG

(1) add the following phrase in Article 2 point g

“digested livestock manure is not seen anymore as livestock manure”