



Algae-based fertilizing products from recycled side-streams: the legal journey

Brussels, 18/09/2024



ROHELINE VIHMAVARI OÜ

Study to Support a Sustainable Algae Industry

CINEA/2023/OP/0006/SI2.906327

Brussels

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Who are we?

Who are you?

Algae products in the Fertilizing Product Regulation

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Algae in the European Green Deal

The European Green Deal
Striving to be the first climate-neutral continent



**Do not require
arable land**



**Do not require
freshwater**

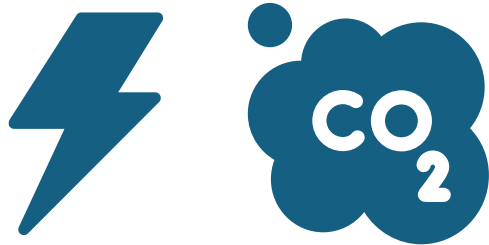


Capture CO₂

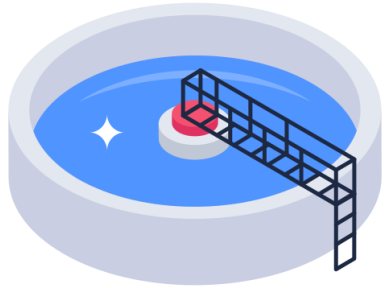


**Reduced
seasonality**

Current algae production is not sustainable



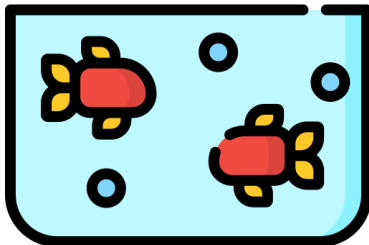
Recycled nutrients for algae production



Urban WW



Manure
digestate



Aquaculture
effluent



Horticulture
effluent

Can algae grown on recycled nutrients be used as fertilizing products?

Can algae be used
as fertilizing products?

Algae and the FPR

Relevant PFCs:

1.A.I. Solid organic fertilizer


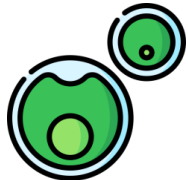

1.A.II Liquid organic fertilizer

6.B. Non-microbial plant biostimulant



Algae and the FPR

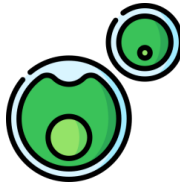


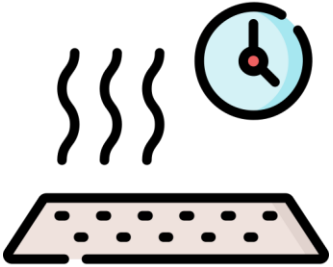






1.A.I. Solid organic fertilizer

				
	2.5%	✓	✓	
	2.0% (P_2O_5)	✗	✓	
	2.0% (K_2O)	✓	✓	
	4.0% total 1.0% individual	✓	✓	

Drying required !

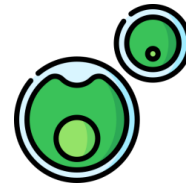
Algae and the FPR

1.A.II Liquid organic fertilizer

			
	2.0%		 Drying required !
	1.0% (P ₂ O ₅)		
	2.0% (K ₂ O)		
	3.0% total 1.0% individual		

Algae and the FPR

1.A.II Liquid organic fertilizer



2.0%



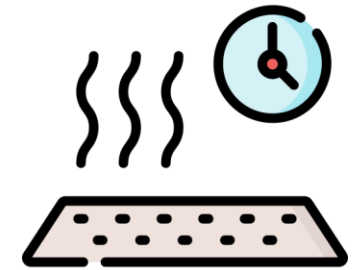
1.0%
(P₂O₅)



2.0%
(K₂O)



3.0% total
1.0% individual



Drying required !

Algae and the FPR



CMC 2: Plants, plant parts
or plant extracts

Includes algae
Excludes cyanobacteria

CMC 1
chemical extraction

Waste and ABP are
mainly excluded

CMC 5
anaerobic digestion

No sewage sludge; ABP
needs an end-point

CMC 13
pyrolysis/ gasification

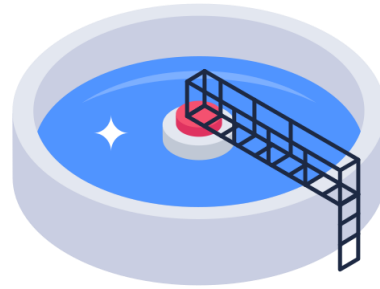
No sewage sludge; ABP
needs an end-point

Can algae grown on recycled nutrients be used as fertilizing products?

Algae grown on recycled nutrients and the FPR



Algae



**Sewage Sludge?
Waste subjected to the
WFD?**



**End-point for
digestate?
Digestate as fertilizer
for algae as crop?**



Organic algae-based fertilizing products (WP2)

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Objectives

1. Assessment of alternative sources of carbon & nutrients for **organic** microalgae cultivation for fertiliser markets, with emphasis on analysing legal framework & application of EU laws by MS
2. A set of validated recommendations of viable alternative sources of carbon & nutrients considering economic, legal and environmental dimensions



EU Algae Initiative

WP2 title	23 EU Algae Initiative Actions
Nutrients for organic microalgae/ cyanobacteria production	<p>Action 8 - work with the algae industry and member States to:</p> <ul style="list-style-type: none">A. Identify valid and <u>safe alternatives</u> to the use of nutrients and CO₂ from various sources for microalgae cultivation & organic certification<i>(B. Promote the extraction of nutrients from algae biomass → WP3 Marcella)</i>C. Support the <u>life cycle assessment</u> of the environmental and climate impact of algae cultivation and production



Methodology

Output	Planned Content
1. Landscaping of EU, national strategies, implementation plans, laws & industry standards	<ol style="list-style-type: none">1 - <u>EU regulations</u> relevant to using algae as ingredient in <u>fertilizers for organic farming</u>, including organic production scenarios with seaweeds2 - <u>Regulation 2021/1165</u> on using recycled carbon and nutrients in production of organic microalgae as fertiliser for organic farming



Algae Value Chains

Microalgae growth media

- N, P, K
- DOC
- Trace elements

Microalgae products

- Microalgae-based feeds for:
 - Farmed fish (also carnivorous)
 - Bivalves
- Microalgae-based fertilising products for:
 - Terrestrial plants (apply on land)
 - Aquatic plants, e.g. aquaponics
 - Other Algae!



[Organic] algae regulatory controversies

- Algae are NOT finfish but are treated like an animal
- Are microalgae fed or fertilized?
- Can an “organic” fertilizer be a sustainably-sourced mineral fertilizer?



Definitions

EU Reg. 2018/848 on organic production and labelling of organic products:

- **‘Organic production’** means the use (including during the conversion period) of production methods that comply with this Regulation at all stages of production, preparation and distribution;
- **‘Organic product’** means a product resulting from organic production (other than a product produced during the conversion period);
- **‘Production unit’** means all assets of a holding, such as primary production premises, e.g. fish ponds, containment systems and sites for algae or aquaculture animals, shore or seabed concessions, and premises for the storage of e.g. algae products, animal products, raw materials and of any other relevant inputs.



Regulation (EU) 2018/848

on organic production and labelling of organic products:

- Article 15 - Production rules for **algae** and aquaculture animals (!)
 - The Commission **shall adopt implementing acts** with detailed rules per species / group of species on the specific characteristics for production and containment systems → see also 2021/1165.
- Article 24 - Authorisation of products and substances for use in organic production
 - The Commission will certain products and substances for use in organic production, and **include any such authorised products and substances in restrictive lists, for the following purposes:**
 - as active substances to be used in **plant protection** products;
 - as **fertilisers, soil conditioners** and **nutrients**;
- Annex II - Part III: Production rules for **algae** and aquaculture animals (!)
 - Operations should be situated in locations that are **NOT subject to contamination with substances not authorised for use in organic production**, or with pollutants that compromise the organic nature of the products.
 - **Only nutrients of plant or mineral origin authorised** for use
 - The cultivation of algae shall take place only in areas with high status of environmental and health characteristics
 - **For organic fish water treatment:** For organic aquaculture animal production in fishponds, tanks or raceways, farms shall be equipped with ue e.g. **use algae to improve the quality of the effluent → but not organic algae!**



EU Reg. 2021/1165

on authorising certain products and substances for use in organic production and establishing their lists:

- Annex II - Authorised fertilisers, soil conditioners and **nutrients** to use for organic Algae and algae products:
 - Sustainable condition: **only if nutrients are organic** or collected in a sustainable way
 - Technical condition: ok if nutrients are processed (grindses,d dehydrated, extracted (aqueous), or fermented



In conclusion

Nutrients



Organic Fertilisers

Organic Algae

Nutrients must be:

- of plant or mineral origin
- organic or collected sustainably

Algae produced with the following nutrients canNOT be organic fertilisers:

- Non-organic nutrients
- Organic Fish waste / IMTA



Moderated Q&A

How do you perceive the use of algae grown on recycled nutrients/wastewaters for the (organic) production of fertilizers or biostimulants?

What do you think are the main hurdles to place in the market such fertilizing products?

What do you think would be the best way(s) to support the market of algae fertilisers for (organic) farming?



Thank you for your attention!
Please contact us if you have extra information

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