

WORLD RESOURCES FORUM

CLOSING LOOPS

TRANSITIONS
AT WORK

FEB 2019
24-27
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& CONVENTION
CENTER ANTWERP

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WE MAKE
TOMORROW
BEAUTIFUL
OVAM



Flanders
State of the Art

Interactive Workshop – OKAPI I

Marketing tailor made compost and digestate-based products

Date: 26 February 2019

Time: 9:50 am – 11:20 am

Quality criteria for compost and digestate for use in growing media

Research results on compost and digestate-based products

Challenges for the use of compost in growing media – Experiences of a growing media manufacturer

Interactive part:

5 Round table discussions on quality aspects, marketing purposes and consumer expectations



Meer halen uit de biologische kringloop



Marketing tailor made compost and digestate-based products

► Agenda

- **9:50 h Welcome and opening**
Moderator: Stefanie Siebert, Executive Director of ECN
- **9:55 h ECN-QAS Guidelines for the specification of quality compost for use in growing media**
Adrie Veeken, ECN TG Chair 'Growing media & Horticulture'
- **10:05 h Research is the foundation of product differentiation of compost and digestate in Flanders**
Elke Vandaele, Vlaco Division Quality and Certification
- **10:15 h Compost in growing media: do's and don'ts**
Nele Ameloot, Greenyard
- **10:25 h Interactive brainstorm session within 5 interactive groups (45 minutes)**
- **11:10 h Feedback from interactive session**

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European Compost Network

- ECN is the leading European membership organization **promoting sustainable recycling practices in composting, anaerobic digestion and other biological treatment processes of organic resources.**
- ECN represents **4.500 treatment plants** (composting and anaerobic digestion) with more than **45 M tpa** treatment capacities.
- Compost and digestate-based products 18-22 M tpa used as organic fertiliser, soil improver and mixing component in growing media

Biological treatment of municipal biowaste	Plants	Input [Mio t/a]
Composting	3.849	30.55
AD and combined AD & composting	705	14.38
Total	4.554	44.93

Source: ISWA/ECN Survey 2018



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European Compost Network

ECN's Objectives

1. Favourable legal framework

Achieve an EU legal framework that supports separate collection, biological treatment of organic residues and production and use of quality assured compost and digestate products.

2. Market development

Achieve favourable market conditions across Europe for separate collection, biological treatment and use of compost & digestate products.

3. Benchmarking harmonised quality standards for compost and digestate



➤ European Quality Assurance Scheme for Compost and Digestate



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ECN-QAS Guidelines

Specification of quality compost for use in growing media

Adrie Veeken, ECN TG Chair 'Growing media & Horticulture'

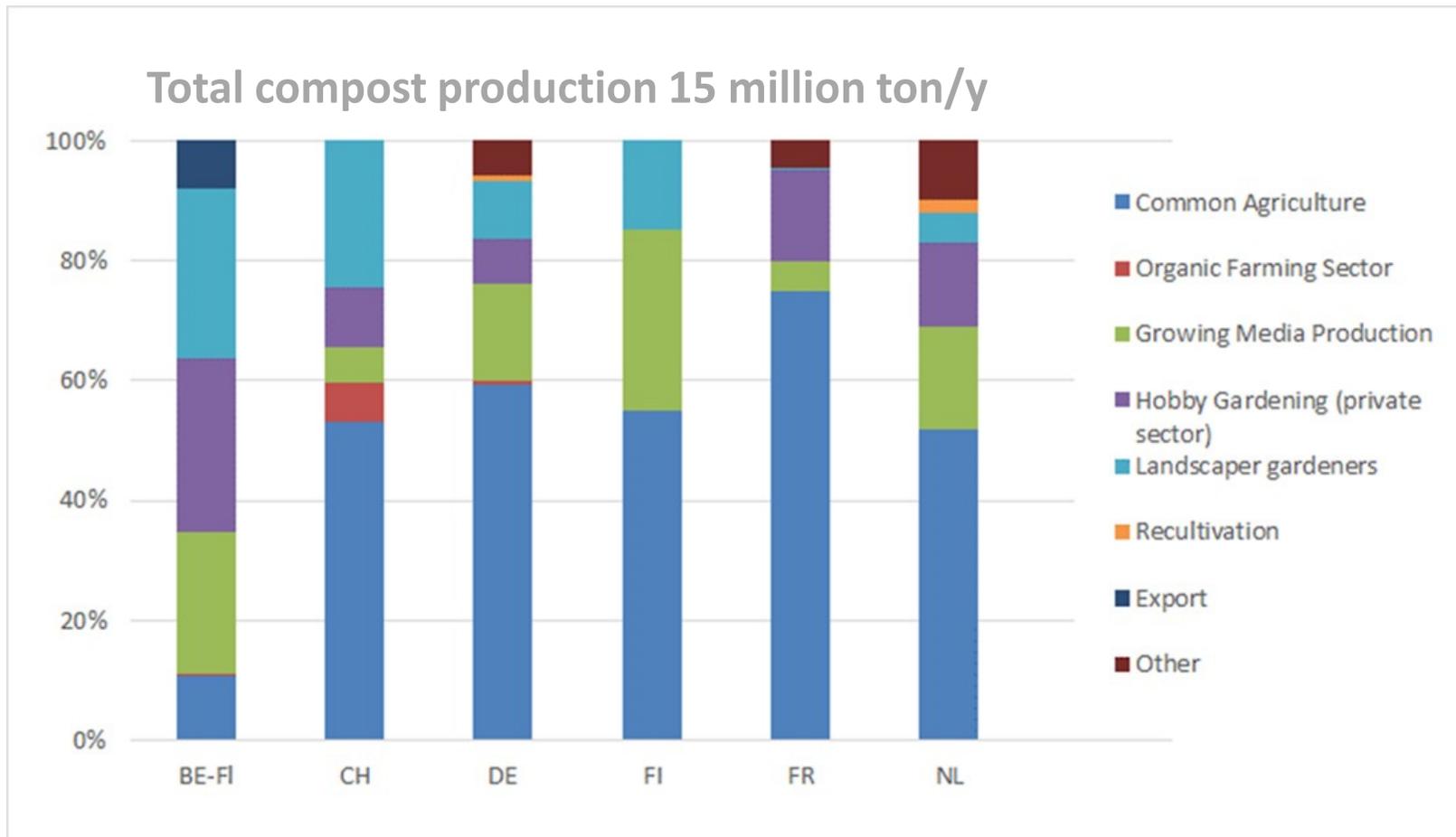
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Markets for compost in EU



- ▶ Compost markets are country specific
- ▶ Growing Media market small

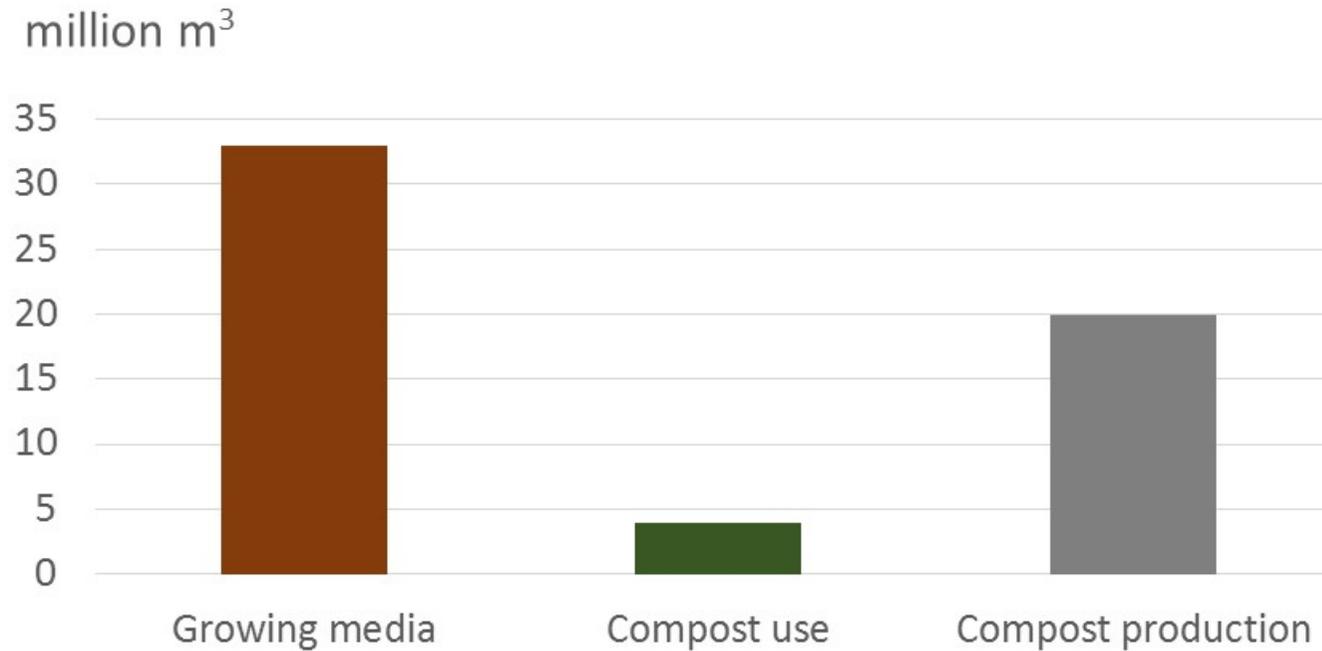
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Market for growing media in EU



- ▶ **Why is not more compost used in growing media?**

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Opportunities for compost in growing media

SWOT *

Strengths	Opportunities
<ul style="list-style-type: none">• Low costs• Disease suppressiveness• Nutritional contribution	<ul style="list-style-type: none">• Public demand to replace peat• Societal needs for recycling organic waste
Weaknesses	Threats
<ul style="list-style-type: none">• Lack of uniformity• High salinity• High pH• Inferior physical properties• Phytotoxicity	<ul style="list-style-type: none">• Human, zoonotic and plant pathogens• Heavy metals

*Adapted from Aviv M. (2013): SWOT analysis of the use of compost as Growing Media Components.

► **Quality and consistency has to be improved**

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Development of guidelines within ECN-QAS

- ▶ Taskgroup within ECN
- ▶ Consultation of external experts
- ▶ Reviewed by Growing Media Europe
- ▶ Publication of guidelines for the use of compost in growing media



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ECN-QAS for compost and digestates

- ▶ Quality Assurance Scheme for Compost and Digestate
- ▶ Promote of recycling of organic wastes: "from waste to product"
- ▶ Basis for End-of-Waste document and Fertiliser Regulation



KBVÖ Austria



BGK Germany



Vlaamse Compostorganisatie vzw

VLACO Belgium



CIC Italy



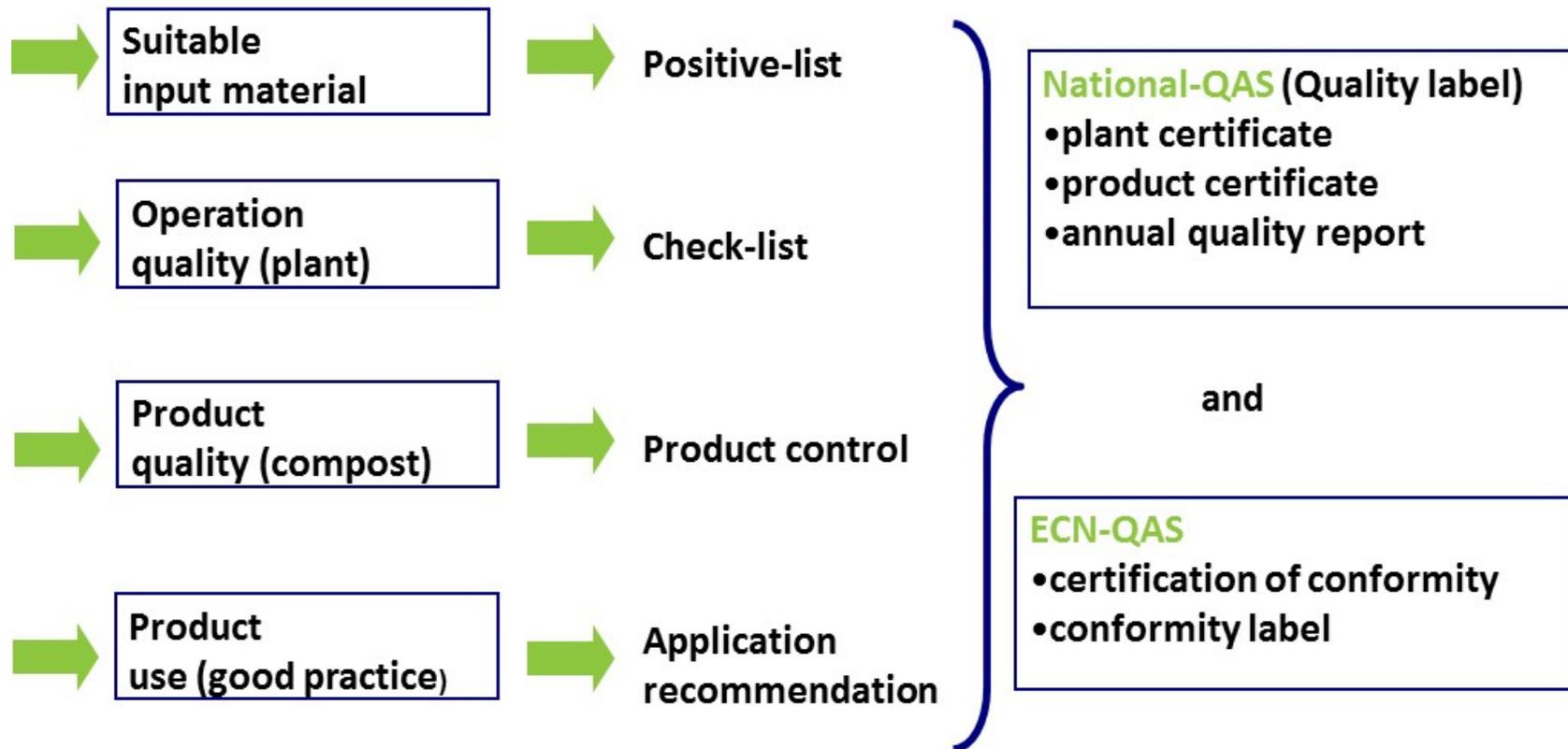
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Quality requirements for Compost and Digestate



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General precautionary quality criteria

Precautionary quality criteria for compost and digestate-based products

	Parameter	Limit value
Hygiene	Salmonellae spp.	Absent in 25 g dry matter
Physical contaminants* (Undesired ingredients and properties)	Impurities (glass, metal & plastics) >2 mm*	≤ 0,25 % dry matter
	Stones >5 mm	< 4% dry matter
	Weed seeds	≤ 1 seeds per litre
Inorganic pollutants (Potentially toxic elements)	Lead (Pb)	130 mg kg ⁻¹ dry matter
	Cadmium (Cd)	1.3 mg kg ⁻¹ dry matter
	Chromium (Cr)	60 mg kg ⁻¹ dry matter
	Copper (Cu)**	300 mg kg ⁻¹ dry matter
	Nickel (Ni)	40 mg kg ⁻¹ dry matter
	Mercury (Hg)	0.45 mg kg ⁻¹ dry matter
	Zinc (Zn)**	600 mg kg ⁻¹ dry matter

* Limit levels for physical contaminants differ from those specified in the ECN-QAS Part C I.

** Copper (Cu) and Zinc (Zn) are also considered as trace elements. Values exceeding 110 mg Cu kg⁻¹ dry matter and 400 mg Zn kg⁻¹ dry matter must be declared.



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Comparison of compost criteria

Criteria	Parameter	Regular	Growing media
Soil improvement	Organic matter	>15%	>15%
Hygienic aspects	Salmonellae	Absent in 25 g	Absent in 25 g
Physical contaminants	Impurities > 2 mm	<0.5%	<0.25%
	Stones >5 mm	-	<4% dm
	Weed seeds	<2 seeds per liter	<1 seeds per liter
Salinity	Na+	-	<250 mg/l
	Cl-	-	<750 mg/l
	Electrical conductivity	-	<190 mS/m
Material properties	Organic matter	>15%	>15%
	Stability	-	<15 mmol O ₂ /kg OM/h
Plant response (cress test)	Germination rate	-	>80%
	Root length index	-	>80%

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Research is the foundation of product differentiation of compost and digestate in Flanders

Elke Vandaele – Vlaco npo

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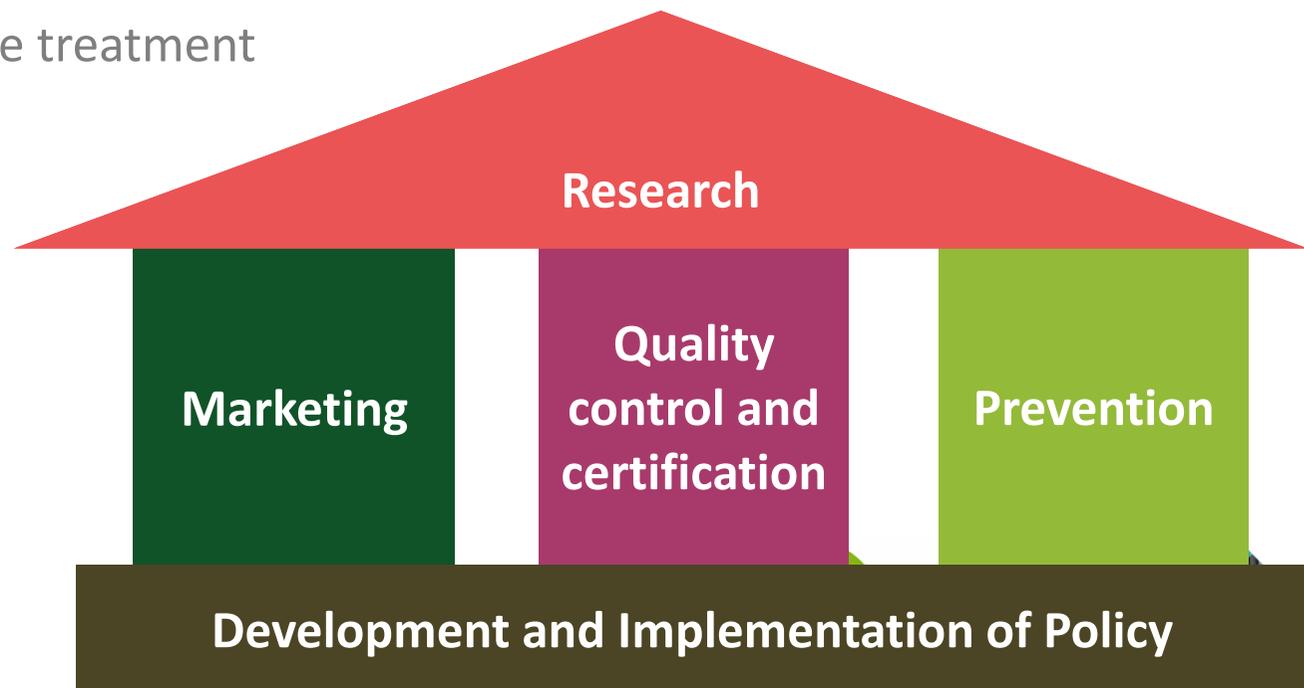
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Who is Vlaco npo?

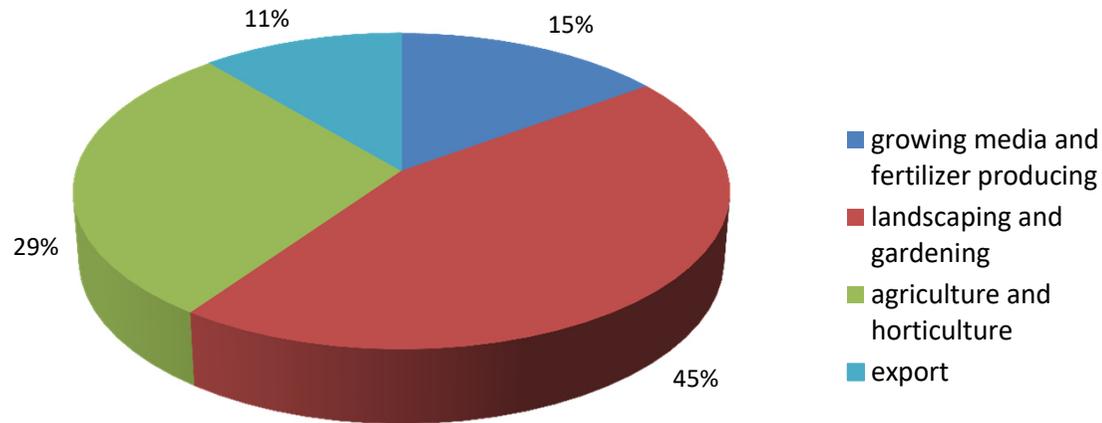
► Vlaco npo = established 1992

- More than 100 members, with activities related to organic waste management
 - Prevention
 - Collection
 - Waste treatment
- Mission

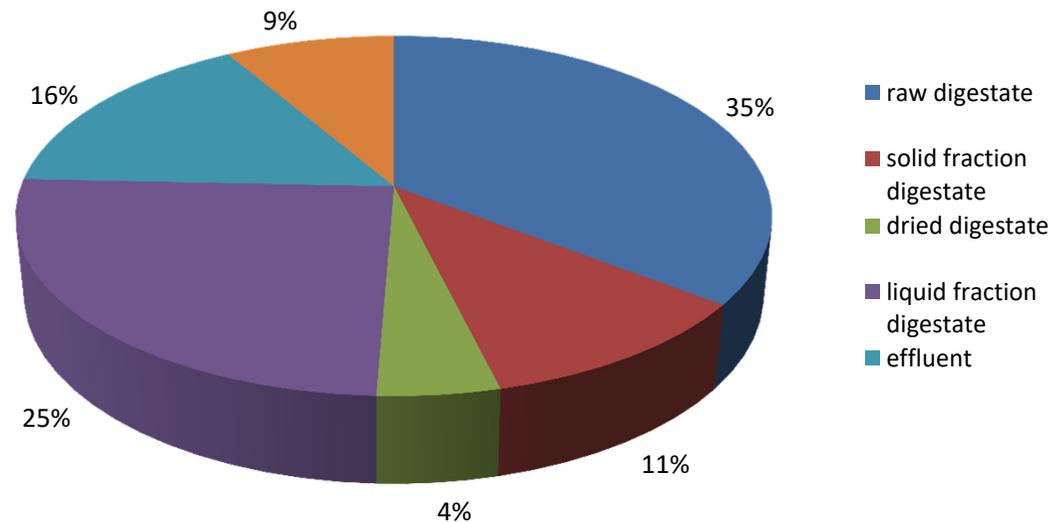


MARKET for COMPOST and DIGESTATE

430.000 tonnes compost



1.200.000 tonnes digestate



✓ 'Good practice'

✓ Based on self control

by treatment plant

- Internal quality system
- Protocol of acceptance for input
- Process control
- Quality control of the end-products
- Reasoned use of the end-products

- Agricultural value
- Input requirements (standard)
- No dilution
- Registration and traceability
- Risk Assessment through sampling + analysis protocol (recognised labs)
- Screening of suppliers of biowaste

- Optimising of the process
- Minimal process time, tracing
- Critical process factors
- Monitoring and steering

- Recognised labs (external control)

✓ Independent control

by VLACO npo on the self control of the company

- Sample taking
- Analysis
- Audits + admin. controls

- Product information document
- Composition + application



VLACO-certificate



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Marketingstrategy → PRODUCT DIFFERENTIATION

- ▶ One size fits all??? NO every domain = own specifics
- ▶ Need for tailor-made products
- ▶ Define opportunities by analysis of needs and matchmaking



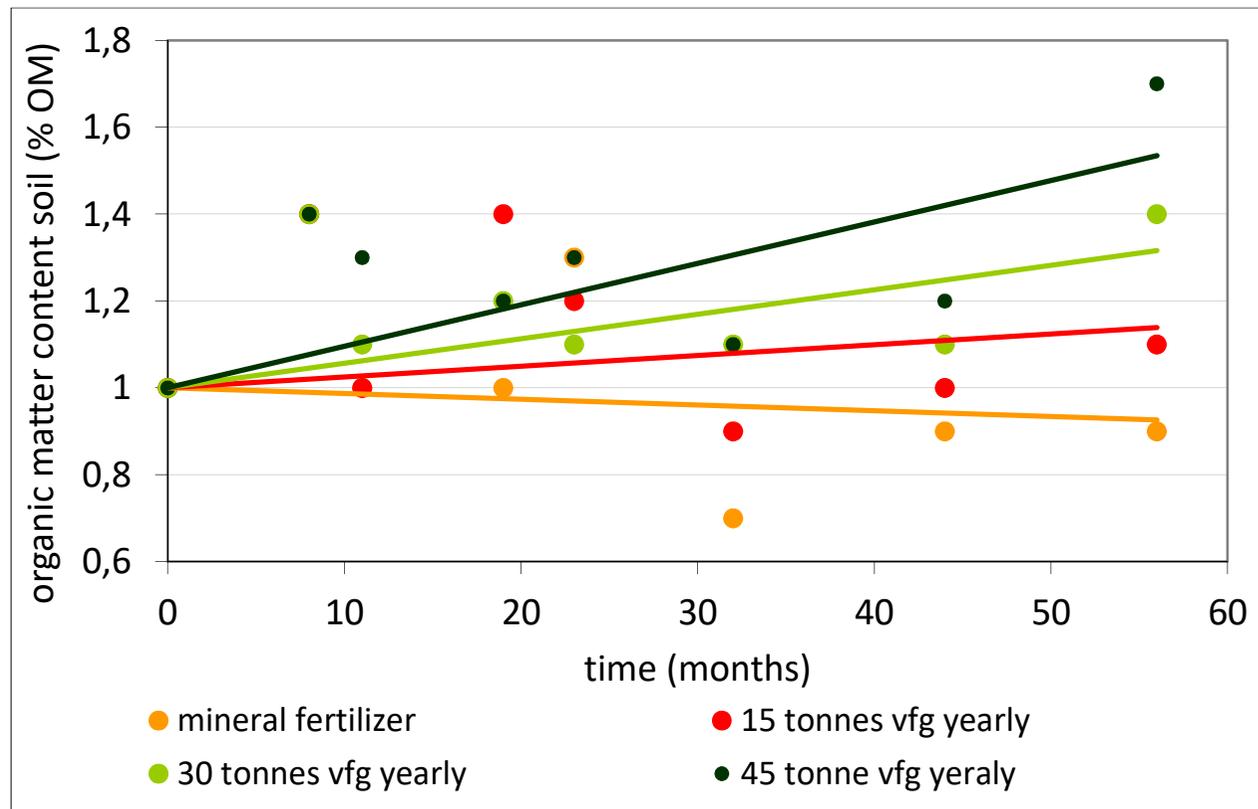
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RESEARCH by FIELD TRIALS

Long term and short term field trials with compost- and digestate-products

- In cooperation with research institutes
 - To prove positive effect on crops (yield, quality, disease resistance, ...)
 - To measure effect on soil (physical, chemical and biological)



RESEARCH by DEMONSTRATIONS

Demonstration of use of new products

- In cooperation with communities, agricultural schools, ...
- E.g. communities tested potting soil based on compost -> new recipe with more fertilizing nutrients and water holding additives
- E.g. communities and community gardens tested pellets of digestate



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RESEARCH by cooperation across EUROPE

- ▶ **Other EU countries has same challenge**
- ▶ **Reflection and cooperation with members of ECN**
- ▶ **Vlaco npo cooperate in European projects**
 - Nutriman: horizon 2020 project
 - Technical knowledge transfer by demonstration practices to convince farmers to use recycling products
 - Soilcom: Interreg project
 - Development of compost for horticulture and ornamental cropping

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SUMMARY

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The do's and the don't of compost in growing media

Industry perspective

dr. Nele Ameloot – Greenyard Horticulture

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What's in a name?

COMPOST = COMPOST??



What's in a name?

COMPOST = COMPOST??



What's in a name?

COMPOST = COMPOST??



What's in a name?

COMPOST = COMPOST??

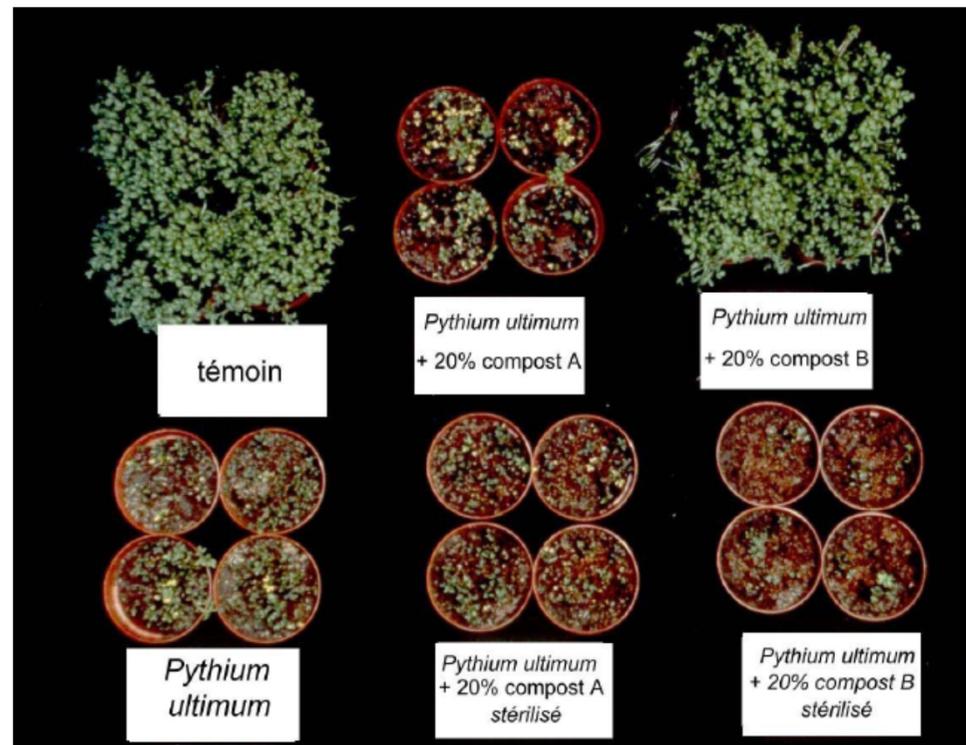


Pros of compost in growing media

Circular and local raw material

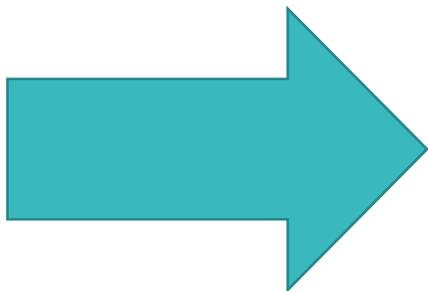
Rich microbial life

- Easy mineralization of organic N in fertilisers
- Some composts can make substrates more resilient to soil-borne diseases



Cons of compost in growing media

- High pH
- High EC values
- Can be high in chlorides
- Unstable compost can lead to N immobilization
- Heavy product
- Low air volume
- Dries out much quicker on the surface
- Weed pressure



Potential raw material,
under the condition that you **select and use it wise!**



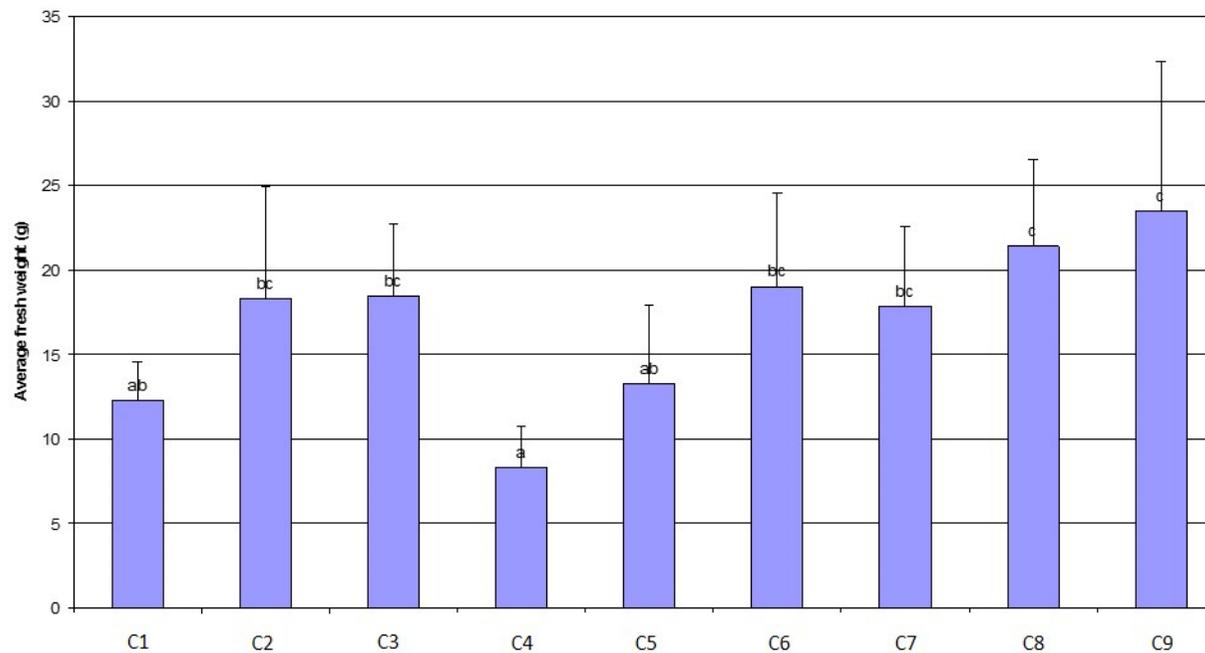
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Wise use of compost in growing media

Effect of 9 compost types in 20% addition on fresh weight of *salvia nemorosa*

→ Not all composts are the same, **select carefully**



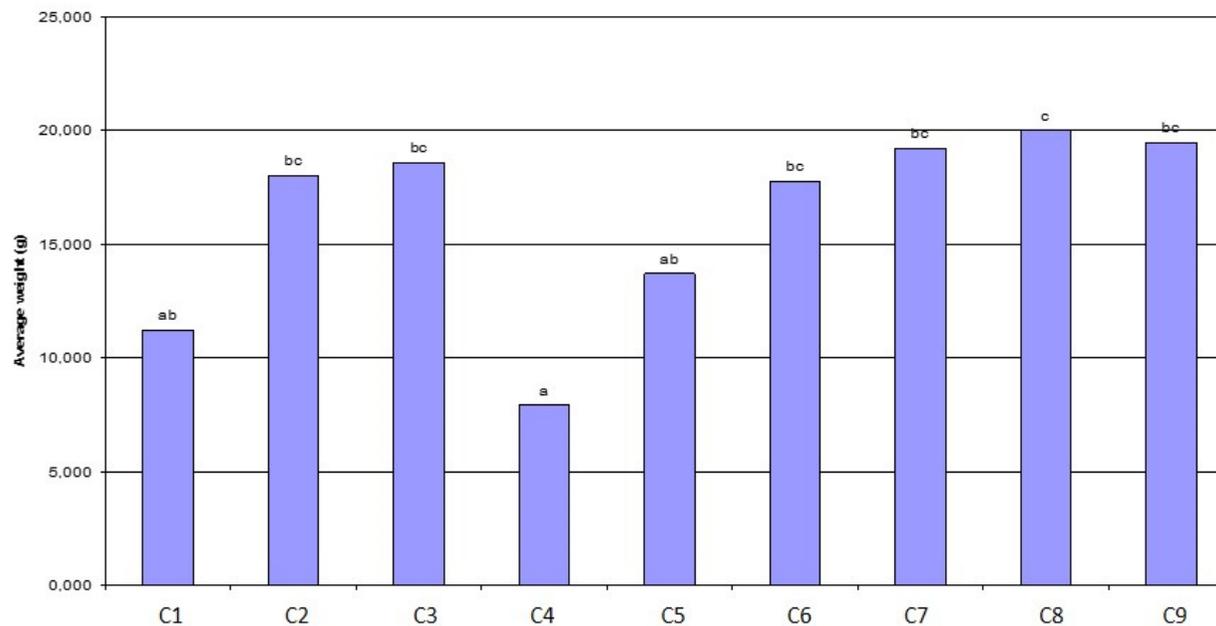
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Wise use of compost in growing media

Effect of 9 compost types in 20% addition on fresh weight of *Chrysanthemum sp. Tardero*

→ Not all composts are the same, **select carefully**



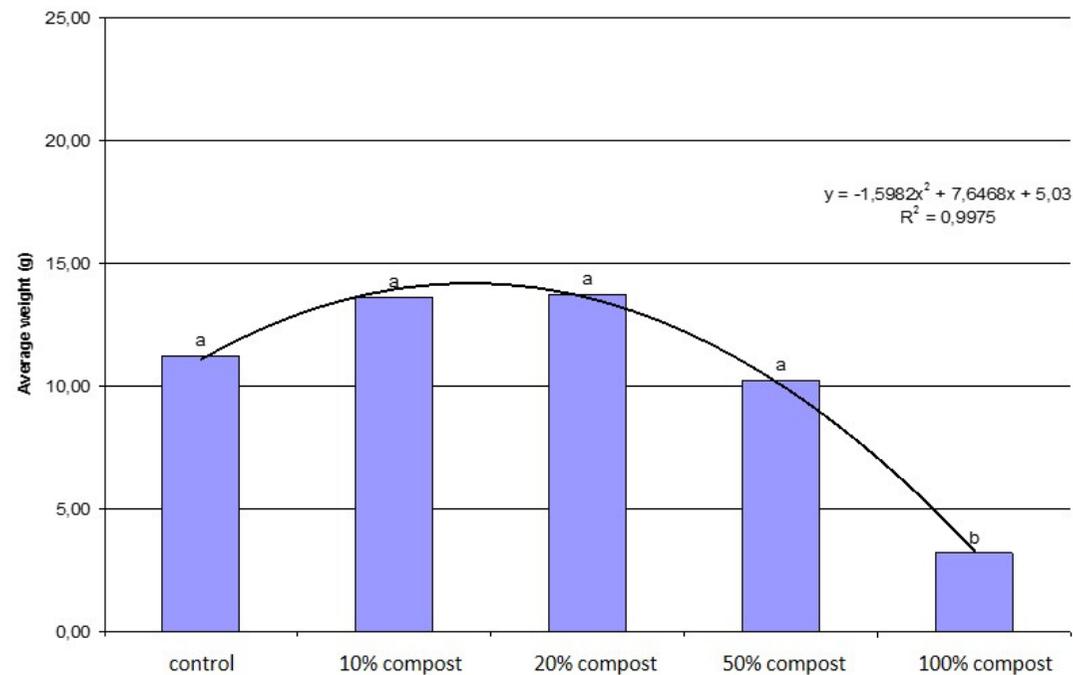
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Wise use of compost in growing media

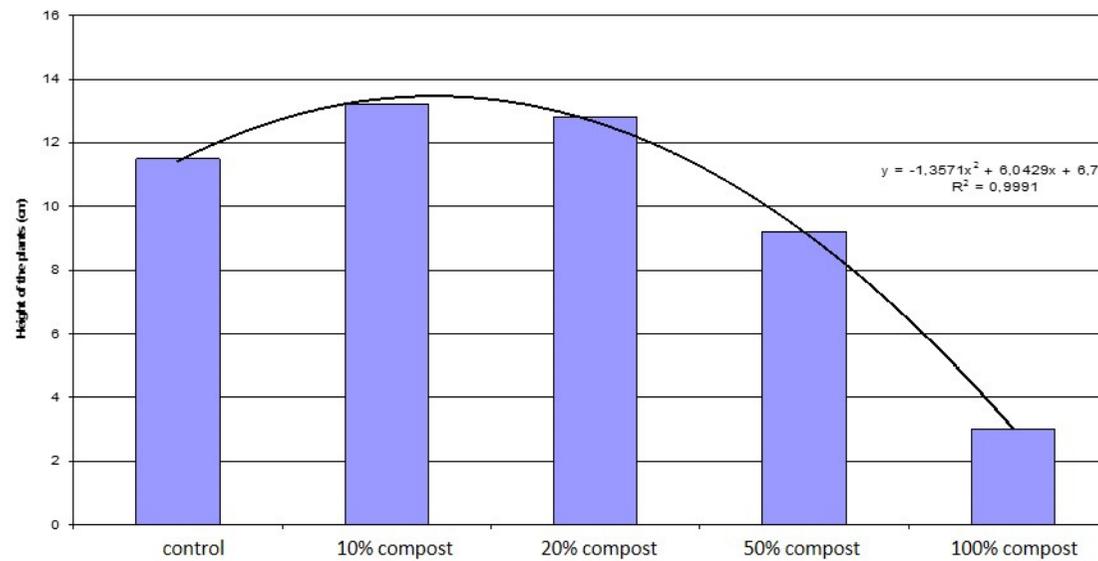
Dosage of compost incorporation on fresh weight of *Chrysanthemum sp. Tardero*

→ Determine **optimum percentage** for each type of compost individually



Wise use of compost in growing media

Dosage of compost incorporation on the growth of *Viola carrera*

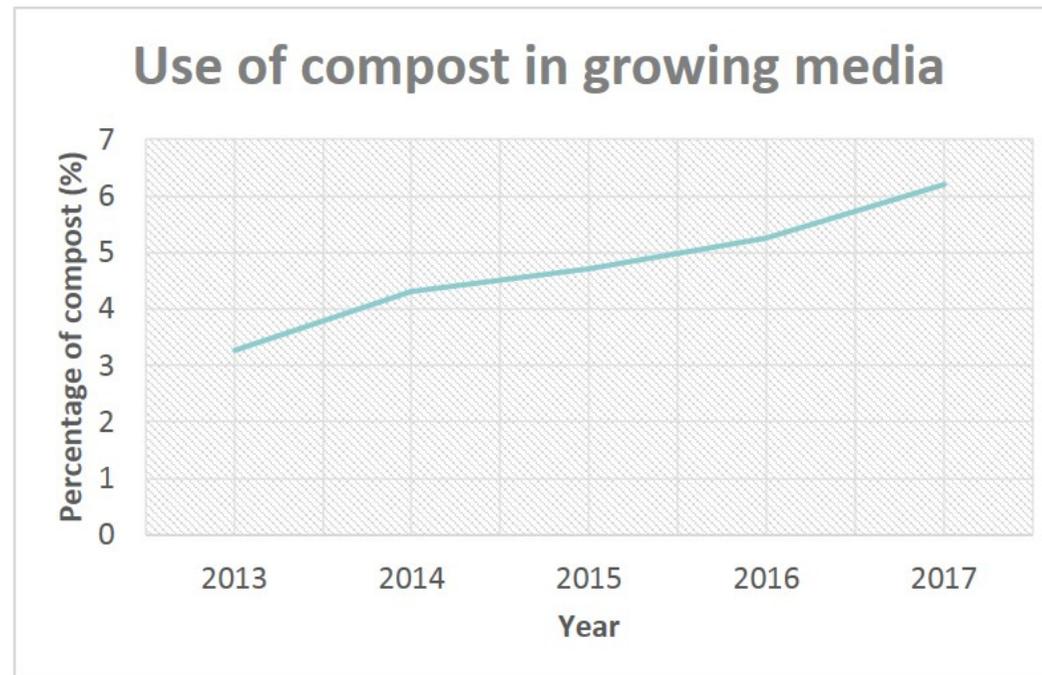


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Use of compost in growing media

- Belgian Potting soil Federation (BPF) market research
- Use of compost in growing media is increasing
 - 2013: 3,3%
 - 2017: 6,2%



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In spring 2019, Greenyard Horticulture will announce it's new company name



Sshhh ...

... our new company
identity is growing.

LAUNCHING SPRING 2019

Marketing tailor made compost and digestate-based products

► Interactive session (5 groups) 10:25 -11:00 h

1. Which compost/digestate-based product has opportunities for creating new markets? For landscaping, agriculture, horticulture - what are the quality criteria for those product applications?
2. Are quality assurance (QA) and labelling important links in product differentiation and marketing?
3. What is the best way to market compost/digestate-based products? (directly, indirectly, garden center, recycling park, etc.)
4. What is your interest for buying or using compost/digestate-based products?
5. What are the expectations of the consumers? (hobby gardener, professional gardener, growing media producer, landscaper, farmer)
6. How to create added value for compost/digestate-based products? (Adding probiotica to compost or digestate is interesting to create added value)

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Marketing tailor made compost and digestate-based products

Conclusions

- Only high quality compost and digestate-based products from separate collected biowaste can be successfully placed on the market!
- Quality assurance and control is a precondition for the use of compost and digestate-based products in growing media!
- There is a need to improve further the quality and consistency of compost and digestate-based products for the use in growing media, horticulture and agriculture!
- Markets need tailor made compost and digestate-based products!
- Compost enriches the microbiological life in growing media and has a high resilience on soil-borne diseases!
- There is a high interest in local produced circular materials.
- Recycled organic materials, as compost and digestate, improve soil organic matter and replace primary nutrients!
- Compost and digestate have a high potential to save greenhousegas emissions!

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