Building blocks for sustainable growing media with focus on microbiology

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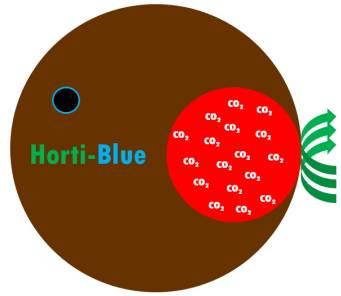

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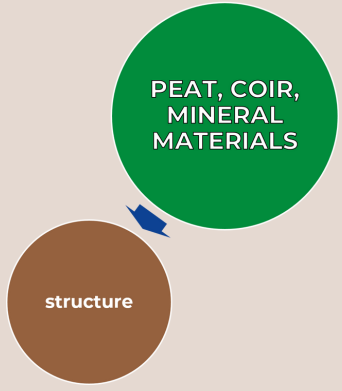
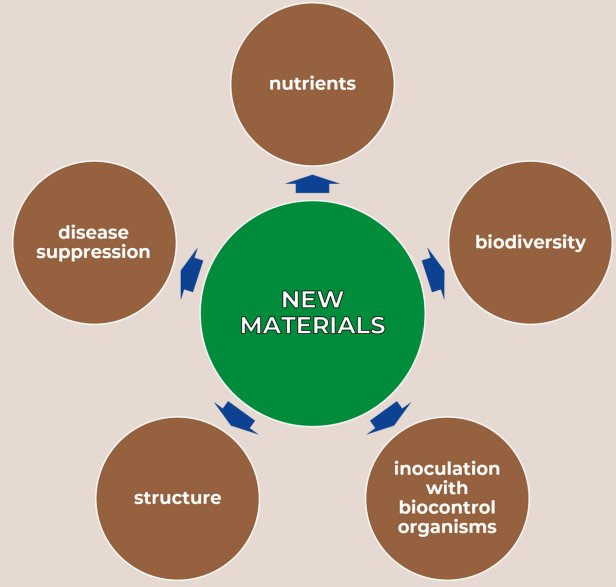
GROWING MEDIA (GM) BUILDING BLOCKS

= function of building block in GM



focus:
structure for plant roots, production and yield
(technological intensification)



add power to the blend:
higher microbial biomass
(but higher microbial activity = lower stability),
efficient nutrient use,
growing media can positively affect plant growth
(ecological intensification)

This project has received funding from the Interreg 2 Seas programme 2014-2020 co-funded by the European Regional Development Fund under subsidy contract No 2S03-046. Both the Province of Antwerp and the Province of East-Flanders are co-funding ILVO for this project.

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This table shows **five new building blocks** for sustainable growing media. For each of these building blocks, related scientific **papers** and **videos** are linked to the associated icons. The building blocks can be used for **bulk replacement** (>10 vol%) of peat, coir or mineral materials or they can be added to growing media in smaller amounts as **amendment** (max 5 g/L). Both the **processing method** from feedstock to building block and the **feedstock** itself can have an **effect on the characteristics** of the materials. To get more details on that, try out the **Decision Tool**. Some of the materials need **sanitation to remove pathogens** (heat or chemical treatment), before they can be added to growing media. Additional **properties that need extra attention** are also mentioned. Finally the effect of the building blocks on the **microbiology** of the growing media is also highlighted (BCOs = biocontrol organisms).

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MORE INFO: DECISION TOOL

	PAPER VIDEO	BULK OR AMENDMENT?	EFFECT OF FEEDSTOCK ON CHARACTERISTICS?	SANITATION NEEDED?	EFFECT OF PROCESS ON CHARACTERISTICS?	PAY ATTENTION TO?	EFFECT ON MICROBIOLOGY OF GM?
CHITIN		amendment	YES	via process	YES	source of N (microbial N release)	stimulates microbiology
BIOCHAR		bulk/ amendment	YES	via process	YES	increases pH	changes rhizosphere microbiology, inoculation with BCOs possible
SPENT GROWING MEDIA		bulk	YES	required	YES	source of P and K, low N-release	very low microbial activity
GREEN COMPOST		bulk	YES	via process	YES	source of P and K, low N-release	diverse microbial life
PLANT FIBRES		bulk	YES	required/via process	YES	risk of N-fixation	inoculation with BCOs possible

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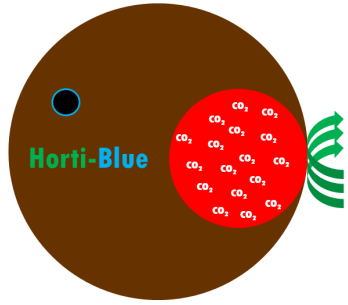

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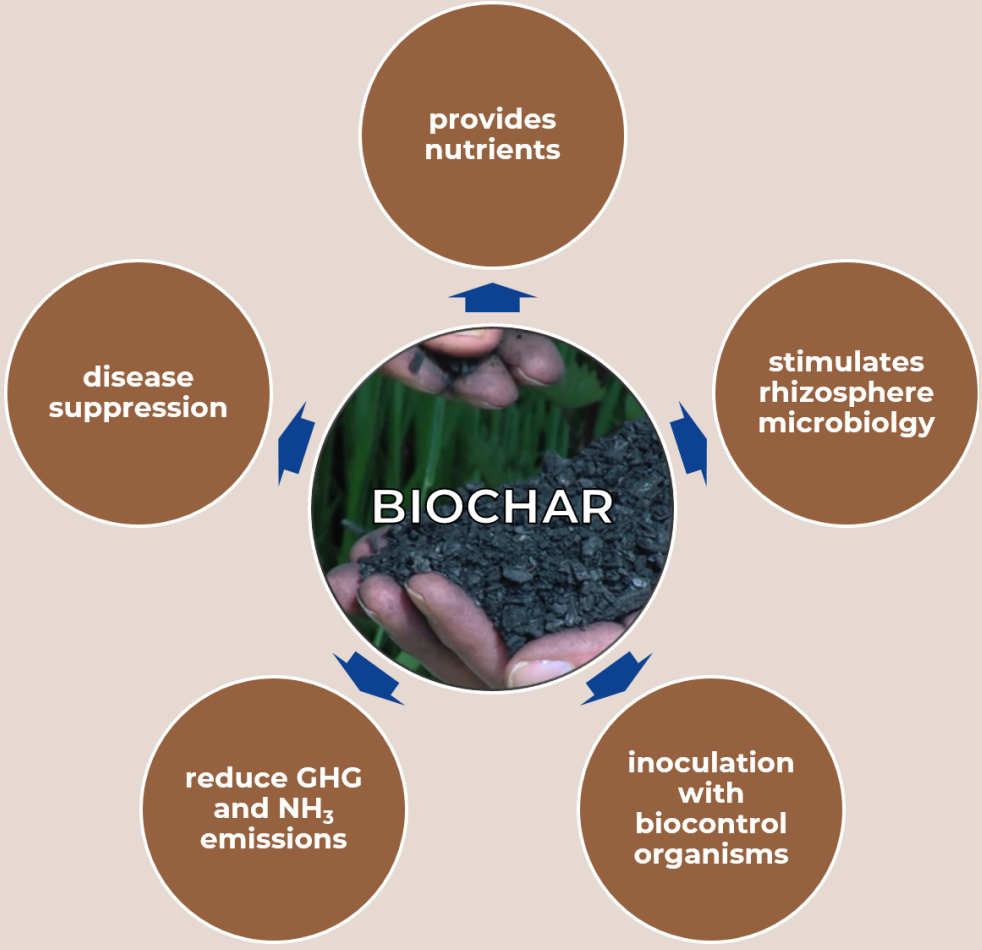

opportunities for optimisation	possible threats
process	nitrogen fixation
feedstock	high pH

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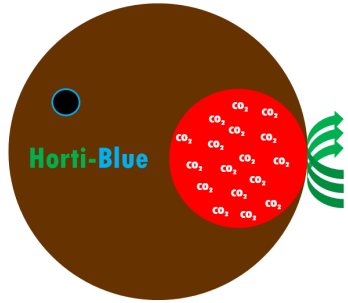

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microbial biomass
compost: 860
vs
peat/coir: 170
(nmol/g OM)

opportunities for optimisation	possible threats
acidification	high EC
feedstock	high pH

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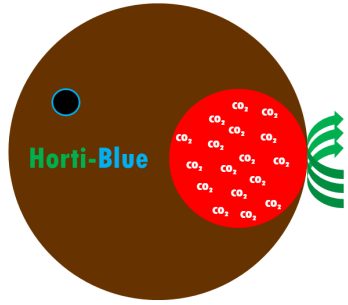

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opportunities for optimisation	possible threats
process	hydro-phobicity
feedstock	

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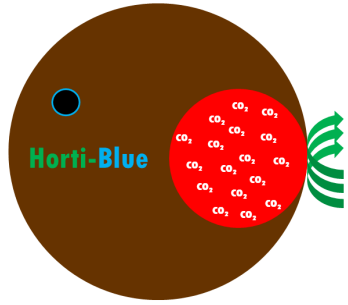

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plant fibre feedstocks:

- wood fibres
- woody fraction of green waste
- reed, soft rush, chopped heath or other vegetation
- Miscanthus or other crops
- flax shives or other crop residues

- structure
- inoculation with biocontrol organisms

opportunities for optimisation	possible threats
defiberization	N fixation
	plant pathogens

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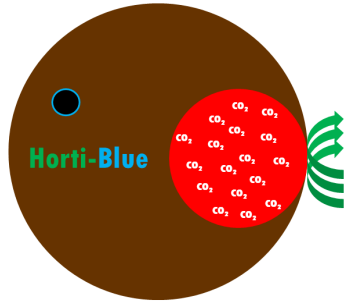

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Webinar 1:
Large scale gasification for energy and biochar production
More info
Watch recording
Factsheet

Webinar 2:
Production of chitin from shrimp shells or Chinese mitten crab
More info
Watch recording
Factsheet

Watch the tomato video & strawberry video to learn how the new sustainable growing media perform in greenhouses!

Webinar 3:
Spent growing media for direct reuse or as a feedstock for biochar and compost
More info
Watch recording
Factsheet

Webinar 4:
New growing media blends for strawberry and tomato (with bulk repacement)
More info
Watch recording
Factsheet

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