

Project	Material			Aim	Material							Peat replacement (vol% or %)	Tested pretreatment of materials	Aspects				Conclusions/ breakthrough	References	
	Submitted	ongoing	Finished		Compost	Coco	wood fibres	Chopped heath biomass	plant fibres	Biochar	Chitin			Chemical	Biological	Physical	Disease suppression			
Strawberry trials PCHoogstraten/ILVO			x	Peat replacement by compost and adapted fertigation for commercial strawberry cultivation.	x	x							20-100 vol%	no	x		x	(x)	role of compost as P and K fertilizer in growing media	*
VIS SyNeCo			x	Optimal use of yard waste in order to balance green energy and materials recycling, process was optimised to provide green waste compost suited for use in growing media for soilless cultivation	x								no pot trials	sieving	x		x		positive effect of sieving out the finer fraction of green waste compost	
MIP DuPoCo			x	maximal peat replacement in growing media by applying mixtures of green waste compost and local residual biomass	x	x	x	x	x				15-100 vol%	acidification, feedstock selection	x		x		growing media formulations with up to 100% peat replacement successfully tested, : chopped heath biomass as feedstock, feedstock selection for green waste compost to increase inherent quality, S amendment to decrease the pH of the growing media	
FP7 Fertiplus			x	Recycle nutrients from urban and farm organic wastes into agriculture as biochar, compost or combinations of both.									0-3%	no	x	x		x	limited value of woody biochar as fertilizer, promising results for disease suppression	**
MIP I-Love-T <a href="https://youtu.be/_qfFLVWS3Mo">https://youtu.be/_qfFLVWS3Mo</a>			x	Plant fibres are tested for partially replacing peat in growing media and as carrier for biocontrol organisms									20 vol%	defibration techniques	x	x		x	protocol for assessing N immobilization in composts and plant fibres	***
MIP Heath4Peat		x		Use of heath vegetation clippings from nature conservation for horticultural applications				x					0-100%	sieving					Chopped heath biomass successfully tested for application in cultivation of ornamentals	
phd Soltaninejad, S.			x	Use of chitin in growing media for increasing the disease suppression									2%	no	x	x		x	Chitin has potential for increasing the disease suppression in soilless cultivation, and mode of action is detected	****

Blueshell (ERANET)		x	Explores shellfish by-products for potential (bio)active compounds targeted at the sustainable supply of safe, healthy food								x	to be decided	chitin extraction from shellfish				x	Intended: valorisation of chitin from shellfish as horticultural stimulant
FWO post-doc Grant: Response of the strawberry rhizosphere microbiome to chitin and biochar in function of plant health: expanding towards metatranscriptomics and DNA-SIP		x	Biochar's mode of action is studied on the strawberry rhizosphere by applying high-throughput sequencing techniques.								x	2-3%	no			x	x	Intended: elucidating the (microbial) mode of action of biochar and chitin in growing media
ReGrow4C		x	Reuse Growing media for Circular cultivation									Focus on reuse of peat	Steam treatment	x	x	x	x	Intended: reuse peat-based growing media
Interreg 2 Seas Horti-BlueC		x	Sustainable up-cycling of agro-, agrofood and fisheries residues in horticulture and agriculture as bio-energy, biochar and chitin-rich products	x		x		x	x	x		>30%	defibrination techniques, gasification, chitin extraction,	x	x	x	x	
LA-traject Bi-O-ptimal@work		x	Sustainable cultivation in container and open field by using innovative and local materials with enhanced microbial life, ready for use and implementation by ornamental growers	x				x	x			Focus on peat replacement	acidification, inoculation with beneficial organisms	x	x	x	x	Intended: peat replacement by compost and chopped heath biomass

\* Vandecasteele, B., Jane Debode, Koen Willekens, Tom Van Delm (2018). Recycling of P and K in circular horticulture through compost application in sustainable growing media for fertigated strawberry cultivation. *European Journal of Agronomy*, 96, 131–145. 10.1016/j.eja.2017.12.002

\*\* Ebrahimi, N., Viaene, N., Vandecasteele, B., D'Hose, T., Debode, J., Cremelie, P., ... & Moens, M. (2016). Traditional and new soil amendments reduce survival and reproduction of potato cyst nematodes, except for biochar. *Applied soil ecology*, 107, 191-204.

\*\* Huang, W. K., Ji, H. L., Gheysen, G., Debode, J., & Kyndt, T. (2015). Biochar-amended potting medium reduces the susceptibility of rice to root-knot nematode infections. *BMC plant biology*, 15(1), 267.

\*\* De Tender, C., Haegeman, A., Vandecasteele, B., Clement, L., Cremelie, P., Dawyndt, P., ... & Debode, J. (2016). Dynamics in the Strawberry Rhizosphere Microbiome in Response to Biochar and Botrytis cinerea Leaf Infection. *Frontiers in microbiology*, 7.

\*\* De Tender, C.A., Debode, J., Vandecasteele, B., D'Hose, T., Cremelie, P., Haegeman, A., ... & Maes, M. (2016). Biological, physicochemical and plant health responses in lettuce and strawberry in soil or peat amended with biochar. *Applied soil ecology*, 107, 1-12.

\*\*\* Debode, J., De Tender, C., Cremelie, P., Shein Lee, A., Kyndt, T., Muylle, H., De Swaef, T., Vandecasteele, B. 2018. Trichoderma-inoculated miscanthus straw can replace peat in strawberry cultivation, with beneficial effects on disease control. *Frontiers in Plant Science*, 9, 213.

\*\*\* Vandecasteele, B., Muylle, H., De Windt, I., Van Acker, J., Ameloot, N., Moreaux, K., Coucke, P., Debode, J. 2018. Plant fibers for renewable growing media: potential of defibrination, acidification or inoculation with biocontrol fungi to reduce the N drawdown and plant pathogens. Submitted.

\*\*\* Vandecasteele, B., Viaene, J., Debode, J., Muylle, H., & Perneel, M. 2017. Selecting raw materials for sustainable growing media: a protocol to assess the risk for N immobilization. *Acta Hort. (ISHS)* 1168, 149-160

\*\*\*\* Debode, J., De Tender, C., Soltaninejad, S., Van Malderghem, C., Haegeman, A., Van der Linden, I., ... & Maes, M. (2016). Chitin mixed in potting soil alters lettuce growth, the survival of zoonotic bacteria on the leaves and associated rhizosphere microbiology. *Frontiers in microbiology*, 7.