

Reduced phosphorus fertilization in peat-based substrates with added Bara clay
and mycorrhizal inoculation

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The use of phosphorus (P) fertilizer has traditionally been high in horticultural plant production. Hence, for horticultural plants grown in peat-based or other soilless substrates adsorbing low amounts of P, the risk of P losses are high. Due to environmental concerns and the limited occurrence of phosphate deposits, there is a need for an increased P use efficiency in the production of horticultural crops. Arbuscular mycorrhizal (AM) fungi form mycorrhizal symbiosis with many horticultural plant species and may improve plant phosphorus uptake. However, the high levels of soluble phosphate commonly used in commercial potting media limit mycorrhizal formation. The aim of the present study was to investigate the possibility of combining mycorrhizal inoculation with the addition of P-enriched clay to control P availability in peat-based substrates. Well developed mycorrhizal root colonisation was observed after inoculation of chives (*Allium schoenoprasum* L) with commercial mycorrhizal inocula in peat-based substrate mixes containing different amounts of a P-enriched Bara clay. Plant weights and phosphorus uptake were markedly improved by the inoculation with AM fungi. However, mycorrhizal colonisation was reduced when medium or high amounts of soluble phosphate was added. The negative effect of soluble phosphate could be partly offset by increasing the amount of clay. However, there was no positive effect of mycorrhizal inoculation on plant growth in the presence of medium or high amounts of soluble phosphate. We conclude that P-enriched clay could be used to control the content of soluble P in the substrate, facilitating mycorrhizal colonisation.