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Experiences in Development of Green Compost as a Peat Replacement Material[®]

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In the U.K. it is government policy to replace the use of peat as a constituent of growing media and soil conditioners with other, preferably renewable, materials. There have been three types of barrier to peat replacement: technical, commercial, and psychological. Over the last decade the technical and commercial barriers have become far less significant, but misunderstanding and bad memories, aggravated by vested interests, still frustrate acceptance.

Although green compost, derived from garden waste collected by local authorities, is too nutrient rich to be used as the main component of growing media, improvements in quality, availability, and understanding have recently led to significant use of the material. Indeed, its nutrient content can replace some fertiliser additives and thus reduce manufacturing cost. Being high in woody material, it has high structural stability and is rich in beneficial microorganisms, notably bacteria and fungi, which suppress plant diseases and enhance nutrient availability. Its high humus content binds and buffers nutrients and holds water.

Green compost can be screened to different size grades. The 10–0 mm fraction is most commonly used in growing media but other grades may be used where different air : water balance or a different nutrient content (coarser fractions contain less nutrients) is required.

Green compost is now very plentiful and production standards (UK PAS 100) have been developed. However not all PAS 100 green compost is suitable for growing media. The most common quality issues are contamination (glass, plastic, and wind-blown weed seeds), maturity, and high bulk density (due to high moisture content). Contamination problems can be addressed with in-vessel composting but capital cost is significantly higher than an outdoor windrowing operation.

Vital Earth is believed to be a unique company in the U.K. composting industry as it composts in small (40 m³) closed vessels, followed by indoor aerated static piles, ensuring thorough sanitisation and maturation. After size-grading, the compost is used as the basis — and main nutrient source — of peat-free growing media for hobby gardeners and professional users.

High pH has long been thought to be a barrier to use of green compost in growing media. However, experience has shown that this is a fallacy. Green compost behaves like an organic soil and “peat chemistry” is unlike soil chemistry in having a uniquely low optimal pH for exchange of cations (K⁺, NH₄⁺, Mg⁺, etc.). Trials with green-compost-based media have produced excellent ericaceous crops at pH values of 7 and more.

Dilution of green compost with composted conifer bark lowers pH adequately for most crops. It also reduces bulk density and nutrient levels and can be used to adjust air-filled porosity and water-holding capacity. In the case of ericaceous compost, humite (rich in humic acids) is added to lower pH further and to buffer pH. Humates have a high cation exchange capacity and also help to hold water.