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Transition to responsibly sourced growing media in UK horticulture (CP 138)

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INTRODUCTION

CP138 "*Transition to responsibly sourced growing media use within UK Horticulture*" is a five year project funded by Defra, AHDB Horticulture, Growing Media Manufacturers and Growers. The project is led by RSK ADAS Ltd with project partners Quadram Institute Bioscience and Stockbridge Technology Centre. The project will develop confidence in the use of alternative growing media materials to diversify a market that has been dominated by high performing peat products for many years. The pressure to seek other materials has come from a combination of government environmental policy and consumer preference for plant products produced in "peat alternatives".

Commercially available growing media, other than peat, is grouped into four main raw material types: coir, wood fibre, bark and green compost. Over the last 20 years much progress has been made by the growing media manufacturers in the reliable sourcing and conditioning in sufficient quantities of each material. In some sectors such as soft and cane fruit there has been a successful switch to coir from peat based growing media. Coir alone, however, is not suitable for all plant types and production systems and sufficient, high quality amounts at an affordable price could not be sourced to replace peat; furthermore, it would also again mean dependence on a single raw material type. It is appropriate on a sustainable availability, supply, performance and cost basis to mix up to four raw materials in a "blend", to produce commercially acceptable "peat alternative" plant products in containers and blocks.

In sectors which are the largest users by volume of growing media and where peat dominates (hardy nursery stock and bedding), growers have found that peat-reduced growing media, typically 25% other materials, can produce reliable and consistent results. Beyond this and towards 40-50% reduction can

be described as "super reduced" and at this level and up to 100% peat free, then results have been variable, or just not suitable from a practical mechanisation and growing system perspective.

As an industry, to make the cross-sector leap beyond an average inclusion rate of 25% for materials other than peat then there has to be a reliable way to predict the performance of "peat alternative" blends. To date the only way to test 100% peat-free blends has been to conduct stand-alone trials. If, however, the raw materials change between testing and manufacture for supply then there can be some discrepancy between expected and actual commercial plant performance.

To develop sufficient experience, knowledge and confidence in alternative material blends, can be time consuming. There is a need therefore to short-circuit this process and be able to reliably predict the performance of blends at the point of manufacture; this is the main deliverable of CP138. If this can be achieved then it will not only increase the range of materials that can be sourced and used by the horticulture industry but expedite the uptake of alternative materials that can perform as well as, or better than, the industry standard, peat.

To achieve this, a programme has been developed, covering research and development, knowledge exchange, demonstration trials and dissemination of best practice throughout all the relevant horticulture sectors; vegetable and salad propagation, protected edible crop production, mushroom production, soft fruit propagation and production, top fruit propagation and production and ornamentals propagation and production (including container-grown plants).

All data generated from the trials work goes into developing a final model, which can be used to create growing media blends with particular characteristics to produce plants of a certain specification. The model itself is based on three key physical properties of growing media; Air-filled porosity (AFP), Available water (AW) and dry bulk density (D_b) (presentation slides 5, 10, 13, 20). Prototypes used in the trial were initially created on the basis that their physical properties would be similar to peat (slide 10). Prototypes created later in the project were then used to explore a wider range of the parameters offered by the materials available, and so were deemed more 'extreme' blends.

The final year of the project (2019) has been designed to test the model, by taking new materials, characterising them for AFP, AW and D_b, and creating blends based purely on those characteristics.

For further information please refer to the annual reports which can be found at: https://horticulture.ahdb.org.uk/project/transition-responsibly-sourced-growing-media-use-within-uk-horticulture