Bedding and Pot Plant Centre: Management of peat-free growing media in bedding and pot plant propagation and production

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Introduction

In August 2022, Defra announced plans to ban the use of peat in the amateur sector in England and Wales by 2024, and more recently announced a ban of peat use in the professional sector, with certain exemptions by 2026, followed by a complete ban on the use of peat in horticulture by 2026 (other than non time limited conservation exemptions). Where proprietary peat-free growing media blends have been used with success on nurseries, growers have adapted irrigation, nutrition and mechanisation to suit the blends used.

This briefing note summarises the findings from a series of demonstration trials carried out by the Bedding and Pot Plant Centre during 2021 and 2022. Commercial quality plug plants and bedding and pot plants were successfully produced in all peat-free growing media tested, across a range of irrigation systems: ebb and flood, boom and hand irrigation. This briefing note highlights how to adjust growing practices to get the best from peat-free blends.

Trials on commercial nurseries

The trials explored the use of peat-free growing media in bedding and pot plant propagation (Earley Ornamentals) and pot plants (Hills Plants), and then charted the production of a range of bedding and pot plants from propagation, through production to marketing in hanging baskets (Arden Lea) (**Table 1**).

Table 1. Bedding and Pot Plant Centre peat-free demonstration trial details, 2021-2022

Year	Sector	Species		Links
2021	Bedding and pot plant propagation	Seed-raised	*Antirrhinum* 'Sonnet' African Marigold 'Antigua' *Cosmos* 'Sonata White' Geranium 'Horizon' *Mimulus* 'Mystic' Pansy 'Premier' *Petunia grandiflora* 'Espresso Grande'	Report 2022
		Cutting-raised	*Senetti* 'Deep Blue'	
	Pot plant production	Cutting-raised	*Calathea roseopicta* 'Silvia' *Ficus benjamina* 'Exotica'	
2022	Bedding and pot plant propagation	Seed-raised	*Dianthus barbatus* 'Festival Deep Red' French Marigold 'Durango Flame' *Petunia* 'Frenzy Plum Bicolour' *Verbena* 'Quartz XP Silver'	Report 2023
		Cutting-raised	*Bidens ferulifolia* 'Golden Empire' *Nemesia* 'Burgundy' *Petunia* 'Capella Burgundy'	
	Bedding & pot plant production	Seed-raised	*Dianthus barbatus* 'Festival Deep Red' French Marigold 'Durango Flame' *Petunia* 'Frenzy Plum Bicolour' *Verbena* 'Quartz XP Silver'	
		Cutting-raised	*Bidens ferulifolia* 'Golden Empire' *Nemesia* 'Burgundy' *Petunia* 'Capella Burgundy'	

Tips for successful production in peat free growing media

Irrigation

- Growing media is designed for specific production systems and should be selected to suit the nursery production and irrigation system, and the plant species in production.
- The source of materials (i.e. manufacturer) and the way they are produced (e.g. particle size, how fibrous the final product is) can cause the growing media to perform differently, particularly in terms of water holding capacity. Water management should be adjusted to produce conditions suitable for the plant species being grown, grouping plants with similar requirements.
- In propagation, encourage strong root development through careful attention to watering (not too wet), adjusting water management to suit plant species and consider allowing slightly longer for roots to develop before transplant; this will also improve plug integrity. Remember, the surface of peat-free media dries out more quickly than peat.
- Trial new peat-free or peat-reduced growing media before widescale use to fully understand the best water management techniques for each substrate and plug performance at transplant. Plug integrity differed between the various media tested.

Nutrition

- Use nutrient analysis to check all new substrates and irrigation water and adjust your nutrition programme accordingly. Frequency of growing media analysis is best determined by individual nurseries using a risk-based approach based on experience and the results of previous growing media analysis.
- Peat-free growing media tends to exhibit higher electrical conductivity (EC) than peat-based media and this may have to be accounted for in fertigation regimes.
- pH can be higher in the peat-free mixes than targets for traditional peat-based mixes (5.5 – 6.0). This can affect plant quality as nutrients become unavailable to plants, for example iron is less available at high pH and this can cause leaf chlorosis. Use nutrient analysis to check the substrate pH is within specification; discuss any issues with the manufacturer.
- There are physical benefits of using alternative substrates to peat. Materials such as bark can provide a greater buffering effect which can help to protect plants against high salt levels. Work with the growing media manufacturer to develop a suitable specification for your crop and irrigation / production system.

Mechanisation

- Peat-free blends tested were suitable for use in potting machines, but flow rates may need to be adjusted to achieve the best fill.
- The tray/pot/pack filling machine may require adjustment depending on growing media moisture content. The moisture content of the substrate can affect the speed of container filling; flow rate is slower for moister materials, which can result in under-filled containers.

General comment

- Remember to store all growing media in a cool, dark place and use as soon as possible. Check with your supplier regarding storage conditions and shelf life.