

MONITORING PEAT-FREE SUBSTRATES

Why soil testing is essential for growing peat-free plants

Testing is key to developing bespoke peat-free mixes for optimal plant health and productivity, Sally Drury explains

When I worked on a nursery back in the 1970s, we checked the surface of the growing medium and prodded it with a finger to decide whether the plants needed watering. We inspected crops for discolouration, deformity and unexpected growth to determine whether to liquid feed. We were growing in peat.

Soil testing, either at a laboratory or with a kit, was optional. Anyway, our plants were always amazing and productivity was not in question. But today things are different. As nurseries journey towards peat-free growing, soil testing is essential.

Different properties

The sustainable alternatives nurseries are learning to use have different physical and chemical properties to peat, and it is these properties that affect water-holding capacity, pH levels and nutrient availability and uptake. Testing holds the key to optimal plant health and productivity, and will provide information about the health, fertility and condition of the growing medium. Regular testing will highlight imbalances in nutrient levels and pH, and allow early amendments to enhance yield, crop quality and productivity.

Whether samples are sent to a laboratory for analysis or growers carry out their own testing, one of the key things to look at is consistency. Peat was relatively consistent, but peat-free substrates can be more variable. For starters, the nutrient content can vary depending on the source material.

Related to the ingredients used in the substrate, pH levels can cover a broad range. The structure of the material



Bryants Nurseries: De'Villiers (left) and Cole

will determine water retention and air porosity, and whether slumping occurs. Then there is the question of what microbial populations occur in the peat alternative and, of course, growers need to know whether there are any contaminants, such as weed seeds or harmful substances including pesticide residues, in the substrate.

Research has shown just how much different types of growing media can vary. Latest work has looked at peat and pumice; coconut coir dust and pumice; coconut coir dust and green compost; coconut coir dust and stabilised wood fibre; green compost and stabilised wood fibre; and a mix of coconut coir dust, green compost and stabilised wood fibre.

It was found that the mixes containing green compost had the highest pH, those with coconut coir dust had intermediate levels and the peat/pumice was the lowest. Electrical conductivity levels were also higher in those mixes containing green compost. Naturally, macro and micronutrients were significantly higher in the green compost mixes. In all mixes, bulk

density was significantly higher in the coir/pumice than in the others, excepting peat. In the UK, professional growers are largely replacing peat with coir and wood-based products, with HTA data showing a fall in the use of green compost.

Knowing the properties of different mixes will help in the initial decision of which ones to trial with which crops. Manufacturers' specifications go some way to providing information, but ongoing testing is also needed.

Target values

Monitoring new growing mixes has proved vital to Hertfordshire-based **Bryants Nurseries** in its move to peat-free growing mediums. By creating target values, the business has used compost testing from **Eurofins Agro UK** to carefully adjust mixes with the aid of supplier **Fargro**. The nursery produces more than one million packs annually and offers an extensive range of flowering impulse plants, cyclamen, primroses and vegetable plants.

Head grower Stanley De'Villiers and operations manager Matt Cole have been instrumental in the choice to invest in peat-free growing relatively early on. "Bryants is a third-generation family business that has continually invested in new methods to produce high-quality products that are grown in a sustainable way," says De'Villiers. "The move to peat free has been an important part of this and we wanted to embrace it before we were forced to in either 2026 or 2030."

The nursery started trialling peat-free growing substrates four years ago and has since worked closely with Fargro to establish mixes from **Jiffy** that suit

the growing conditions and crop types. “Working with Sean Whitworth at Fargo has helped us to understand how to monitor and learn from an adjustment to the mix,” adds De’Villiers. “We have honed and adapted the mixes to suit principal crops like geraniums, tomatoes and vegetable plants.”

De’Villiers notes that developing the peat-free mixes has helped him learn a new scientific and analytical approach. “Fargo has partnered with Eurofins to provide us with accurate and detailed compost testing,” he says. “This has given us insight into pH balancing and how deficiencies in phosphorus can be managed with data delivered back to us in just a few days.”

He suggests that growing crops such as geraniums in peat would enable the team to see leaf yellowing and catch potential problems early. By contrast, the peat-free mixes require greater analysis to identify where deficiencies could affect plant health. “Testing is important to peat-free growing because there are more variables,” De’Villiers continues. “When growing in peat we could speak to other growers to see if they had similar problems, but we can’t do that now because we all grow in different mixes. We are constantly learning from the tests to better calibrate mixes to the crop.”

Reduced costs

Eurofins’ tests have enabled Fargo and the Bryants team to set parameters and benchmarks for the growing mixes. This has reduced costs and the time needed to react by offering N, P and K figures that correspond to targets. Fargo’s Whitworth says: “The presentation of the results is the big benefit of Eurofins’ test data. The ability to make decisions when registering a test and then see the benchmark values in the result is very grower friendly and the analysis can be as fast as five days. Speed is crucial to decision making and Bryants can’t afford to wait more than seven days.”

Whitworth accepts that the substrate is more expensive and conditions following Brexit and the Covid pandemic have seen peat-free substrates increase in price. However, while it is approximately 30% more expensive to grow in a peat-free substrate,



Bryants Nurseries: carefully adjusted peat-free mixes are used to grow high-quality plants

he suggests that this is partially compensated for by the inbuilt nutrition that alternatives can offer.

Using the test analysis, the business has developed an understanding for what the new substrate needs in relation to the crop. Whitworth says: “I have worked closely with Stanley and Matt to test and monitor crops more regularly. This had led us to evaluate the feeding strategy and improve operational efficiencies, and today we need far less time to manage the crops using peat-free substrates.”

De’Villiers observes: “Being able to offer peat-free early and reliably to our customers, and being at the forefront, is a big benefit. Some customers are not that aware of the pressures peat-free growing presents, but keen gardeners are starting to switch on to peat free and through greater education we are seeing a shift in demand.”

Through using the Jiffy mix and regular tests to establish benchmarks, the team is learning to make adjustments that help productivity and improve margins. “Jiffy offers a good, sustainable and stable substrate that we

are getting to know and will, in time, provide the same reliability as peat without the environmental impact,” says De’Villiers. “Eurofins’ testing helps to ground our decisions and this has been instrumental in our transition to peat free.”

The team at Bryants still has to make adjustments for temperature and light, but has reached a point where less monitoring is needed to get the desired results from the substrate. De’Villiers concludes: “We anticipate the price of the substrate reducing but, if demand goes up as more growers move to peat free, we may see cost increase. However, working with Fargo and Jiffy, we have established mixes that are sustainable and can be supplied at a manageable cost for years to come.”

Testing and understanding the properties of the growing medium is essential, but is not the end of the story. To optimise growing it is also important to look at the water used in irrigation — particularly the nutrient and mineral levels present, the pH, salt concentrations and contaminants — that can change with the season. ■