Frequently asked question (FAQ's) on the use of peat free substrate mixes

1. **Do I need to give extra feed to counter N Immobilisation?**

All peat replacement materials are potentially going to show some nitrogen immobilisation – as they are 'fresher' organic materials than 'peats' and therefore more susceptible to microbial degradation. The majority of Peat free substrates will have additional 'N' added at production and recorded on the product specification.
Depending on length of storage and the conditions, temperature and moisture content of the mix the available N may have been adsorbed by the microbial activity. After a period of storage (2months +) spot analysis will help to identify any issues and then a decision can be made prior to use on the need for further N applications.

2. **Are there any issues with storage of peat free material in bags?**

Work is being undertaken to understand the changes during storage. Like all organic materials changes may take place during storage and hence in '1' above there is a recommendation to have spot analysis prior to use of longer than 2 month stored materials.

3. **What is the shelf life on peat free materials?**

The physical additive used in peat free mixes will remain relatively unaltered during storage, but the colour may deepen. In bags there may be the growth of saprophytic fungi, but this should not cause problems when the materials are in use. Spot analysis prior to use of longer term stored materials is advisable.

4. **What's the difference between normal base fertilisers and the new SRF (Slow release fertilisers) that you use?**

Most of the base fertilisers added to growing media (GM) are combinations of various chemicals such as Potassium Nitrate and Mono Ammonium Phosphate to give compounds such as 14-12-24. All these ingredients are water soluble and are only designed to support growth for 2-4 weeks, assuming they are not washed out of the GM by excessive watering and or rainfall.
The SRF are combinations of chemicals some of which are not immediately water soluble but require some mineralisation processes before they are plant available. This means they are going to give a greater longevity to the supply of nutrients from the 'base' to the growing plants.

5. **Some suppliers are using bark and bark fines whilst others use wood fibre, are there difference?**

Both materials can be used as Peat alternatives. Wood fibre as a manufactured material has the advantage of production consistency and quality and thus more predictable in use. Composted barks definitely have a place in growing media but they require quality control to ensure predictability in use.

6. **Can we use finer material (e.g. sawdust)?**

Sawdust is difficult to source, there are a number of very big alternative users, power stations for biomass, animal bedding and when glued together as pallet spacer blocks. There are developments of finer grade woodfibre which will reduce the fibre size and allow for increased use in smaller pots and cells.

7. **Is there enough Coir to supply all horticulture when everyone is forced to be peat free?**

As it currently stands the supply of quality coir is limited and increasingly under pressure to supply the various country's needs. Longer term we do not want a palm oil situation where new plantations are introduced at the expense of existing food production agriculture.
There is no current indication from the NGO's that they will reject coir- but in Germany generally they do not see Coir as a long-term alternative.

8. **What other material are you looking at using, as coir may be banned too at some point, or demand exceeds supplies?**

All the major GM producers are constantly looking for new and emerging additives or replacement materials- this is a commercially sensitive area. Ideally, the industry needs to identify local waste stream materials to keep the environmental footprint as low as possible.

9. **Do you have a target pH on peat free for non-ericaceous mixes?**

The initial pH of alternative mixes could be anywhere between 6-8. The big difference here is that the alternative materials do not have the 'buffering' capacity of peats and as such their pH will rapidly reflect the plant types and fertiliser applications.

10. **Why isn't Lime added in peat free recipes?**

Peats all have a naturally low pH and this is buffered such that the acidity can be maintained. Limestones were added to peats to neutralise the acidic nature of the peats and maintain the best pH range to equalise the availability of all nutrients.
All the currently available alternatives have natural pH's above 6.0 and as such do not have acidic sites which require neutralising, therefore the addition of lime is not necessary. The consequence of this is that mixes do not have the additional sources of Calcium and Magnesium normally supplied by the limestones. Additional Calcium and Magnesium additions to mixes are therefore needed.

11. **Is it worth adding more Clay to help with buffering?**

This does need considering- but also very much depends on the source of the 'clay' and its buffering capacity. Also worth considering cost impact, not only of the clay but the implications on haulage of the weight increase.

12. **Do peat free recipes need more liquid feeding?**

Good practice suggests that a low level of liquid feed to all crops at every watering is desirable. The issue has always been that if you do not maintain feed to plants, then by the time you see potential deficiency it is too late to fully correct any leaf discolouration or loss.
It is easier to back off feeding if the crop is becoming too lush than it is to correct visual deficiencies.

13. **Should I water peat free crops differently to peat based crops?**

Generally, peat free mixes do not have the moisture retentive properties of many peat based mixes. Works by Chris Blok and colleagues in Holland clearly showed that more frequent low level watering was a better way of maintaining even growth in the peat free mixes they tested.
Note: often with peat free mixes the surface can dry more quickly and so there is a tendency to then over water mixes. It is important to lift pots where possible and examine the actual wetness of the root ball below the surface.

14. For peat based mixes we aim for pH to be 5 to 6 why is peat free a lot higher?

This is dealt with under items 9 & 10- above- Note generally the pH of alternatives to peat are not buffered and the pH of the mixes in use reflects the fertiliser use and the type of exudates from the plant roots.

15. The EC levels are much higher I'm worried this will harm crops?

This generally reflects that many of the alternative materials have naturally higher levels of available Potassium and in some cases Chloride and Sulphate. This does need monitoring and the addition of any other fertilisers should reflect the background content of nutrients. High levels of available K could restrict the early development of seedling roots, so the choice of base ingredients does need considering carefully.

16. What can be added to give a better AFP?

To increase the AFP of mixes- coarser particles can be sourced such as pine bark pieces and chopped coconut husk.

17. What can be added to give better water holding?

The use of clays and possibly green waste compost to increase the density of the mixes will help.

18. Should peat free mixes have wetting agents added?

Whilst some of the materials used in peat free mixes do wet easily they can become hydrophobic quite quickly. This is an established fact in the United States, where bark is the predominant additive to peat based mixes. So wetting agents are a good idea in all our Peat free mixes, and this will allow us to make the initial mixes drier which should improve shelf life. From a practical stance growers need to consider what many American nurserymen do, i.e. irrigating with a wetter at 1ml per litre applied throughout the growth period- especially late Spring and Summer.

Version 5

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