

# Peat Amendment of Greens - how to get it right

By TREVOR SIVIOUR, Principal Consultant, Turspec Pty Ltd Ph (02) 9804 6211

**Why do you add amendments to sand green profiles?** Is it to improve moisture retention, cation exchange capacity (CEC) or both? Maybe you believe amendment is not necessary?

Sands are such biological deserts that I believe both chemical and physical adjustments are necessary. My first priority has always been to achieve the correct balance of capillary and non-capillary porosity in the root zone.

In greens this is usually the top 150mm of a 300mm profile, as the effective rooting depth is determined by mowing practices.

It is critical that the amended root zone has sufficient available water for at least two (2) days. Based on a crop loss of 7mm per day and allowing for 50% depletion of the root zone (150mm), you need a volumetric moisture content of at least 18%.

I am also sceptical of the contribution that the USGA perched water table (PWT) can make. Moisture in the PWT will not automatically move upwards, as it is held at pore tensions that prevent this. So, if this PWT water is at 200-300mm and the roots are at 0-150mm, what is its function.

Using the same argument, if there is plenty of water in the lower profile, why amend it with peat?

Peat and Cocopeat products are however the best for improving capillary porosity, as they are not readily decomposed. Manures, seaweed products and the like will decompose rapidly and are no substitute. They, and products such as zeolite, are excellent at improving CEC and/or nutrition. In a new green, short-term organic products added to the seedbed can also moderate surface moisture loss during turf establishment.

As a professional consultant I have had the opportunity of putting this into practice. Two of the more recent projects have been the Greg Norman designed Ellerston Golf Course (for Mr. Kerry Packer) and Vintage Golf Course (for Stevens Group).

The companies Vieband Sands Pty Ltd and Galuku Pty Ltd were contracted for both of these projects to supply sand and Cocopeat amendment respectively. As part of our brief Turspec was responsible for profile design, laboratory testing and quality control.

Peat amendment addition has always been quoted as x%. This is very vague, as peat will vary in moisture content and density. Moisture content will influence expanded volume. For example, 1.0 litre of air dry peat can expand to 1.5 litres when wetted to 50% of maximum water holding capacity. This means that in a volume blend, the actual organic matter by weight and hence capillary porosity, may vary depending on the moisture content of the peat that is added.

To avoid this problem, the expertise of Galuku and Vieband were able to maintain even moisture content in the Cocopeat and we were able to check quality control by measuring percentage organic matter by weight in the mix even though the blends were prepared on a volume basis.

It would be nice to have a root zone mix where the physical and chemical conditions are ideal, however there is usually a limit on expense and the technology of blending operations needs significant improvement.

In conclusion, I believe priority should be to achieve the correct air/water balance in the root zone. Peat, and particularly Cocopeat is excellent for this purpose. Off site mixing is essential, as a satisfactory root zone mix cannot be achieved by rotary hoeing of amendments. A new green or green reconstruction is the opportunity to 'get it right' so

1. Identify reputable suppliers with quality materials.
2. Have the necessary testing done to design the profile.
3. Retain someone to monitor quality.

Be prepared to pay more for the correct result – it will help you sleep more soundly on Christmas Eve when the temperatures are 400C.



**BULK LOADS OF COCOPEAT DELIVERED TO VIEBAND SAND QUARRY**



**FIRST BLENDING PROCEDURE AT VIEBAND QUARRY**



**FINAL BLENDING / SCREENING COCOPEAT AMENDED SAND**