

The State of Growing Media: How Many Mixes Do We Really Need?



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Joining me this month is Dan Jacques, technical services manager for SunGro Horticulture's Eastern region. Dan earned his undergraduate degree at the University of Massachusetts, Masters at the University of Maryland, and PhD at Ohio State University. He has served the horticulture industry for over three decades in the area of crop production, root zone substrates and nutrient management.

Peter: Dan, thank you for sharing your expertise today. Let's jump right in. The title of this article suggests the pendulum has swung toward diversified mix offerings further than you feel is needed. Please elaborate.

Dan: Hi Peter. When I say there are more mixes out there than we really need I am talking about the main components in a mix such as peat, perlite, bark, coir, vermiculite, etc. When growers are looking for a mix, they are generally looking for something that will fit their crop types and watering/fertilizing practices. That said, if we divide mixes between bark-based mixes (bark, peat, perlite, etc.) and peat-lite mixes (mainly peat and perlite), we really only need a

few mixes within each category based on physical properties of the mixes. You need a coarse, medium and relatively fine mix in bark-based mixes and a coarse, medium and plug/propagation type of mix in peat-based mixes.

I have given numerous talks where I discuss the physical and chemical properties of the major components that make up a mix and usually end up with about a dozen total mixes that we might need out there, and that includes using coconut coir in some of the mixes. If we are talking strictly peat, perlite and bark, the three most common components in mixes, then we can probably get by with about six or seven mixes total. We look to bark mixes for longer term crops and for outdoor crops, while most indoor crops can be successfully grown in peat-lite mixes.

Peter: Thanks for the insight, Dan. Reading your comments I found myself thinking about the fertilizer aisle in a hydroponics supply store. There are too many products and too much secrecy resulting in unnecessary grower confusion. More often than should be required, I find myself stating to growers that a plant is a plant is a plant. Too many, particularly cannabis, growers, believe that the crop they grow is special, unique. Surely every crop has its production nuances but, come on, is your plant really that much different from those that the rest of us grow?

I think what I'm hearing from you is that each growing mix manufacturer could get by with the dozen or so blends you've described. But that still leaves the grower with potentially dozens to choose from considering different manufacturers and distributors. All this said, it makes sense that growers learn to recognize the different categories of mixes you're defining so they are able to compare apples to apples when making decisions. Moving on, let's shift to some of the

components of our best mixes. Update us on the status of amendments such as perlite and vermiculite.

Dan: Don't get me started on the fertilizers and other additives in the hydroponic aisles. We could easily turn this article into an entire book just covering that! But I digress, let's get back to your question on perlite and vermiculite. There are a number of new products that have been introduced with the intent to supplant perlite and vermiculite, and others that look to replace peat or bark.

Let's look at some alternatives to perlite. Rice hulls are probably the first alternative that comes to mind. In short-term crops, for growers who mix their own, this may be a viable alternative. However, there can be some issues with rice hulls as they may shrink down in the mix faster than perlite and can be attractive to rodents. Still, many growers use them successfully and they are a viable alternative. It comes down to cost.

Another possible perlite alternative is wood fiber or wood chips. Many growers are reporting good results with both of these, but some have had issues. Even though these can substitute for perlite and/or bark, they are somewhat different and may need slightly different watering or fertility practices, as they are less inert than perlite.

For vermiculite, wood fiber has been looked at as a viable alternative. Vermiculite is not as prominent in mixes as it has been in the past due to quality issues, along with cost. Do we really need vermiculite in mixes? Some growers swear by it and others have decided it is not worth the extra cost. Some major vermiculite-containing mixes contain only about 5 percent vermiculite. That is not really enough to impart any of the positive physical and chemical properties of this component.

Peter: OK, you just touched on something I'd like to understand better. When you say 5 percent vermiculite isn't enough to impact the mix, tell me more. What is a minimum percent of any component that you feel is needed to have an impact? Am I correct in stating that, perhaps, some manufacturers add a dash of this or a pinch of that, like chefs do, to stake claim to a perfect recipe? Is this just another form of the confusing fertilizer aisle?

Dan: I feel that in most cases, you need at least 10 percent of a component to have an effect on physical and/or chemical properties of a mix. Nutrient-rich composts, such as vermicompost, are an exception. I have seen a marked difference in plant growth when this component is added to a mix at less than a 10 percent rate. And yes, sometimes, a component is added just to appease a customer's desire to have that component in the mix.

Peter: That brings to mind a research rule that serves me well. In my experience, a treatment effect needs to minimally be in the 15 to 20 percent range to be visible enough for a grower to get excited whereas we researchers can get excited over differences that are smaller. Next, how are we doing with peat moss, coconut coir, bark and other base components?

Dan: Peat, coir and bark are here to stay. These are natural and renewable components that make up the majority of our mixes. They do so for a good reason — they are proven to be the more successful components available in the industry. There has been a lot of talk about peat moss and whether or not it is really renewable. Keep in mind that we harvest less peat worldwide than what is deposited anew in bogs every year.

Finally, the new kids on the block: wood chips and wood fiber. Introduced above, these are similar yet different. Wood chips are exactly as they are named, small chips of wood added to a mix. This is not composted bark. Research shows this component to be a viable alternative to both bark and perlite. Cost is a driving force in growers looking to use this new component.

Wood fiber is a more processed product that is even newer to the U.S. industry (it has been around for a while, but is just now gaining some traction). In my opinion, it is more of a substitute for vermiculite than for perlite. It is also touted as a partial replacement for peat. We are presently researching this, but have not finished our trialing.

Really, what drives all of this is cost, as stated in my comments above. The other factor is consumer perception, which has

greatly impacted us on vermiculite and is also beginning to affect perlite. As consumers look for products that are or seem more natural, products like vermiculite and perlite come into question. This tended mainly to impact retail mixes in the past, but now people question what kind of mix the plants they are purchasing were grown in. Stay tuned on this one, as this could be a long and wild ride!

Peter: Great point about consumer perception, Dan. This has become a common theme in the Duets column, something I wasn't expecting but welcome with open arms. Accompanying the theme of consumer perception is the pressing need for us as an industry to better educate our customers so they understand how we grow crops and why we use certain practices.

Reciprocally, we need to pay attention to their preferences and learn from them. Kim Williams addressed organic growing, Chris Currey helped with hydroponics, and you're helping with growing media. I'm not suggesting this is a one-way street where we simply justify our methods. We need to learn from them every bit as much as they need to learn from us.

Dan, thanks for sharing your thoughts on the state of growing mixes. [gpn](#)

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