The art of soil mediums

Whether it's an outside vendor providing raw materials or the finished potting mix, growers work hard to find the right combination for their crops

By Dan Rafter
Photos by Cam Sivesind

Steve Gilmer likes to experiment. It's the best way for him to grow the best greenleaf Japanese maple, `Moonglow' magnolia *(M. virginiana)* and sawtooth oak at Johnathon Lee Propagation Nursery Inc. in Salem, Ore.

Gilmer is the propagation manager at Johnathon Lee, and he is the one responsible for putting out the crops that the nursery's customers will want. And Gilmer, like most industry pros, understands that it's not possible to get healthy plants without first using the right potting soil medium. A medium that lacks the proper combination of fertilizers and nutrients will mean sickly or underperforming crops, and few things hurt business as quickly.

Gilmer also understands that he can't create these perfect potting mediums without the help of outside vendors. That's why he works closely with Marion Ag Service Inc. of St. Paul, Ore. The company provides different mixes of fertilizers that growers use when putting together their potting mediums. Of course, Gilmer doesn't rely solely on Marion Ag. He also has to get his peat moss, bark, pumice and other potting materials from outside sources.

The reasons he relies on vendors for these materials? It's far more cost-effective to import the materials than it is to produce all the components of a potting medium on-site. And by receiving the fertilizer, bark and peat from outside sources, Gilmer gains flexibility: He can combine the materials in any way he sees fit, all in an effort to produce the best potting medium for each of his crops. If he ordered premixed potting medium in bulk, Gilmer wouldn't be able to experiment with different ratios and wouldn't have developed the perfect combinations for his many plants.

"I can make my mixes any ratio I want," Gilmer said. "We change the fertilizer and the pH, and we can do it load to load in small increments. I like to conduct trials with different mixes. I may do a trial on a smaller number of crops, as opposed to having to do it on a full house. Particularly with crops that aren't doing what I want them to do, I keep trying different things."

Gilmer is far from alone. Several growers — especially smaller and medium-size operations — order the components that go into their potting mediums from a variety of off-site vendors. They do it for the same advantages that Gilmer has realized: cost savings and flexibility.

Trial-and-error

Finding the right mix of ingredients for potting medium is never an easy task. It's not one that can be duplicated from nursery to nursery, either. The surest way for growers to create that perfect medium? Unfortunately, it's mostly a matter of experimentation.

Just ask John Wood, owner of Woodlot Nursery in Woodburn, Ore.

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John Wood
— Woodlot Nursery

Wood mostly grows Japanese maples, but it still took him nearly six years to discover the perfect potting medium for his trees.

"It's a lot of trial and error," Wood said. "That's pretty much how it is for most everybody. The three main things you find in a potting medium are bark, pumice and peat moss. Those are the three main ingredients that everyone uses. But how those ingredients are combined, and what fertilizers you use, that's the challenge."

Wood, like many smaller growers, finds it most cost-effective to order his potting materials from outside vendors and then to send them to an off-site soil-mixing laboratory — in his case, Phillips' Soil Products Inc. in Molalla, Ore. — where they are then blended into one mix.

This is the arrangement that Wood has come to rely on, but finding that right mix was not an easy task. For instance, Wood has never been able to grow effectively in peat moss. He's not sure why, but he's rarely grown healthy maples in it. His mixes, then, are mostly a combination of herb bark and pumice.

While that mix works well for Wood, it may be a disaster for a grower just clown the road. The reasons for this are many, including the type of soil at different nurseries, the way employees may water crops, personal preference and an unending number of other variables.

"One of my best friends, his mix is 100 percent different from mine," Wood said. "A lot of it depends on things you wouldn't necessarily even think about. Take your employees. Most employees will run the water for however long you tell them to run it, no matter what it's doing to the medium. You have to make sure in cases like this, that you have a medium that has good drainage. If you're not relying on other employees to water, you may not have to have the same drainage properties."

Other growers like to include a time-release insecticide in their mediums. Wood tried this once hut didn't like the results. The insecticide is no longer part of his potting medium, just another example of trial and error in action.

Help from the pros

As technical adviser for Woodburn-based Woodburn Fertilizer, Jim McKay works closely with growers across the state to help them in creating the right potting mediums for their crops. Woodburn provides pre-mixed and custom-blended fertilizer mixes, both liquid and dry, that growers add to their potting mediums. The company also manufactures a line of pesticides that growers can blend with their mixes.

The company works closely, too, with the soil blenders in the Pacific Northwest. This teamwork is all about helping growers produce the healthiest crops possible.

"We work very closely with the nursery owners and growers to basically grow the best plants we can," McKay said. "It's all about working together to help guarantee good, strong crops that customers want."

Woodburn and similar companies provide a host of *ducts to make the creation of potting mediums a simpler process for growers. The company, for example, produces long-term controlled-release products. These are blended into potting mediums, where they stay active up to two years and gradually release. Growers do not have to re-fertilize the plants for up to two years, saving them both time and money.

Woodburn employees are also available to provide advice to growers who are still experimenting to find the perfect medium.

"We work with plant nutrition on a daily basis," McKay said. "We can help growers take a lot of the guesswork and trial work out of the process. That's important. They can't afford to make a mistake or injure or kill any plants while in the process of growing them. With our advice, maybe they can get to that right medium in a shorter amount of time."

Not all nurseries, of course, order out for the materials in their potting

Woodburn Nursery & Azaleas Inc. buys raw potting mix components and makes its own blends for its varied crops.

Andy Burlingham, sales manager of Woodburn Fertilizer, explains during a 2005 tour of the company's plant how it custom-blends potting mixes for growers, delivering those mixes — or raw ingredients for on-site self-mixing by growers — either by the bag or by the truckload.

mediums. Some blend their own soil on-site, though these tend to be larger nurseries. Some blend on-site because they don't want to pay outside vendors. Others do it so that they can operate several different growing mixes at the same time.

Marion Ag Service's David Hicks works closely with growers to help create the right potting mixes. It's a way, Hicks says, for growers to save significant time and money.

"It's a whole lot easier for growers to approach us and tell us what crop they're growing and that, say, it has to he available for sale 19 months from now," Hicks said. "We can then recommend to them the kind of growing components that they'll need to put in their potting medium."

Hicks, too, has seen a large portion of the industry move toward long-term slower-release fertilizers. Growers who rely on such products do not have to hire as much labor to apply additional fertilizer to their crops. Any cost advantage is important in an industry as competitive as Oregon's nursery business.

"Labor is no longer cheap," Hicks said. "It is more cost-effective to put enough nutrition in there so that it lasts the entire life of the plant."

A good potting medium starts with an equally good planning session. Hicks will meet with growers and ask them questions about their past growing methods, if they have experience with either short-season or long-season products, how effective the products they've used in the past have been, and what kind of improvements they'd like to see from products they use in the future.

Hicks then discusses with the grower the needs of specific crops. Certain plants, of course, break dormancy earlier and, therefore, have different needs from their potting mediums. Different plants perform differently under specific temperatures and in certain environmental conditions. Each of these may need a different type of potting medium to achieve their best results.

"It's all about clarifying what the grower is looking for from a specific product," Hicks said.

Mike Haugh, production manager with Wilsonville, Ore.-based Fairdale Nursery, is another grower who orders the materials for his potting mediums from outside vendors. Fairdale, though, mixes its own "soil on-site, blending the hark, sand and fertilizers to the specifications the company has created during the years.

To help create the optimum potting medium, Fairdale works with Soil and Plant Laboratory Inc. Officials from the lab visit Fairdale to test the nursery's soil and analyze its water. The lab then tells Fairdale exactly what materials it should be using in its medium mixes, depending on the plants they are designed for.

"They do everything," Haugh said. "They tell you just what you need to do to increase the fertilizer levels up to their optimum levels. They are a good, professional voice to use regarding anything about fertilizers."

Anything that takes at least some of the guesswork out of creating potting mediums can only be a good thing.

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