From The Industry Side:

True Differences Between Pine Bark, Hardwood Bark, and Bark Ash

by: Dr. Bill McElhannon, Director of Fafard Technical Services

Here are three distinct components with fundamentally different properties. Pine Bark, Hardwood Bark, and Bark Ash have all been successfully used in soilless mixes; but the grower should distinguish certain basic differences between them.

Bark Ash

Some paper mills use bark as boiler fuel, with bark ash remaining as a by-product of the industry. This ash contains black, plate-like particles of carbon which are used in a number of Metro Mix products after the fine dust is removed.

Bark and bark ash are fundamentally different materials. As a mix component, bark ash is similar to perlite. Chemically, however, bark ash is different from all mix components. Raw bark ash has a very high pH (often as high as pH 11) which must first be reduced by leaching with water prior to using.

The main disadvantage of bark ash is that it breaks down very easily with mechanical handling. Bark ash particles are very brittle, and when crushed will form a powdery charcoal material that can fill the large pore spaces in a mix, reducing aeration. Another frequent complaint is that bark ash mixes are messy to use.

Pine and Hardwood Barks

The only similarity between pine and hardwood barks is that they both come from a tree's epidermis. Hardwood barks lack consistent uniformity because their bark source can be quite variable.

Oak, poplar, and maple are the most common sources of hardwood bark, with the latter a variable blend from different species of trees. Hardwood bark's composition depends upon the type of trees that mills were processing when the material was obtained. Some hardwood barks such as walnut and cherry are phytotoxic.

Pine bark is derived from a single genus of plant. Therefore, it's a more uniform raw material. Most pine bark used in soilless mixes is obtained from loblolly or slash pine grown in Southeastern U.S.

All barks are composed of cellulose and lignin. Pine bark is approximately 95% lignin and 5% cellulose. Hardwood barks contain less lignin (55-75%) and more cellulose (25-45%). Pine bark's high lignin content causes this material to decompose very slowly.

Hardwood barks, higher in cellulose content, decompose much more rapidly.

Bark Processing

The objective of processing bark is to reduce the cellulose content of the material. Since cellulose breaks down rapidly, use of unprocessed hardwood bark can result in bark decomposition in the growing container. Result: increased moisture retention and reduced aeration.

Also, cellulose-consuming bacteria can tie up available nitrogen, causing temporary nitrogen deficiencies in plants.

Hardwood barks require the addition of high levels of nitrogen during composting to reduce the cellulose content. After composting, hardwood barks have a pH of 7 - 8, and may require chemical amendment to reduce the pH.

Processed hardwood bark, often more fibrous than comparable pine bark products, is difficult to distinguish from peat. Processed pine bark is clearly distinguishable from peat by its aggregate, plate-like appearance.

Pine bark is processed in a number of ways. Fafard processes its bark naturally by piling and turning, aging the bark for 9 - 12 months. No nitrogen or other chemicals are added. Naturally processed pine bark has a very low cellulose content with a pH in the low 4's. It is a stable aggregate, and decomposes very slowly in a container.

Fafard pine bark is processed and aged in a very coarse state; then large bark particles (>5/8-inch) and bark fines (<1/8-inch) are screened from bark prior to use in the mix.

Naturally processed bark is stable, uniform and predictable. It provides the mix with some disease resistance.

Fafard #3B, #4, and #4P contain 30% or less pine bark. Fafard #3 contains approximately 40% pine bark, while Fafard #50, #51, and #52 contain some 60% pine bark.

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