Scientists develop sustainable, environmentally friendly potting medium

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A new type of sustainable and environmentally friendly potting medium made from thinned pine trees has been created by U.S. Department of Agriculture (USDA) scientists and their university cooperators.

Nursery plants are now grown in containers filled with soil-less potting medium, formally called substrate, consisting of Canadian peat moss, perlite, vermiculite and pine bark. But obtaining these materials can be costly and time-consuming, due to required energy inputs and availability.

WholeTree is a new material that can be used alone or mixed with other materials to make substrate. It was created by horticulturist Glenn Fain, formerly with USDA's Agricultural Research Service (ARS) at the ARS Thad Cochran Southern Horticultural Laboratory in Poplarville, Miss., and Charles Gilliam, a professor with Auburn University. They collaborated with research leader James Spiers and horticulturalist Anthony Witcher at the ARS Poplarville laboratory, and with Greg Young, owner of Young's Plant Farm in Auburn, Ala. ARS is the chief intramural scientific research agency of USDA.

As its name suggests, WholeTree is made from all parts of a tree, in particular the southern pine tree (Pinus taeda). But the trees aren't cut down in natural forests. Instead, the trees used to make WholeTree are harvested from tree plantations at the thinning stage, when some trees are removed to achieve a density the site can support. Once processed, WholeTree can be used as an alternative substrate.

Similar products have been available in Europe for several years, but WholeTree could be one of the first available U.S. products made from locally grown materials. According to Fain, who is now an assistant professor at Auburn University, field and laboratory studies have demonstrated the successful use of WholeTree, even at 100 percent for some nursery plants.

The scientists are further researching WholeTree's suitability for use in cutting and seedling propagation of herbaceous perennial and woody ornamental crops. So far, they have conducted tests on plants popular to the ornamental and landscaping industries.

More information: Read more about this research in the August 2010 issue of Agricultural Research magazine.

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