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Precision forestry explained

Rusty Evans

Precision agriculture is a concept that is accepted and practiced on row crop acreage, particularly throughout the Midwest where land is well-suited for tillage. With precision agriculture, fertilizers, herbicides, lime, etc. are applied at precise rates, varying throughout the field depending on the soil characteristics. This method makes the best use of these soil additives, assuring that no area receives too much or too little. Each acre is treated uniquely, as though it is one of a series of small fields all falling within one larger field, all working together for maximum profit.

Though not commonly practiced in forestry, this same precision management concept can be applied. Most privately-owned forests have great diversity.

Site factors, such as soil, will vary according to position on the slope (ridge tops and upper slopes are less productive than mid and lower slopes). "Slope aspect," or direction the slope faces also has a measurable impact on productivity (south and west slopes are less productive than north and east slopes). Further, past practices within a forest often result in an assortment of tree species which vary in age and condition. For example, if portions of the forest were previously exposed to livestock pasturing, ground fire, timber harvesting or even row cropping, these areas will have different attributes from other portions of the forest that were not exposed.

Too often a generalized, broad-brush prescription is made and implemented when, instead, due to its diversity the forest needs precision forestry.

Many private forests are more a conglomerate of small, unique stands than a uniform forest tract. Each of these smaller stands should, based on both economics and ecology, be managed with careful, individual analysis of needs.

For example, a 100-acre forest tract may have 20 percent of its acreage in poor-quality trees, previously mismanaged and without good economic potential, scattered in four separate, smaller stands. These areas could be regenerated (clear-cut) to create young growth and diversity in wildlife habitat. An additional 50 percent of the acreage might have middle-aged, fine-quality timber needing to be lightly thinned (harvested) to gain some monetary return and to energize the remaining trees so that they'll be ready for a follow-up harvest 15 years hence. The balance (30 percent) may be simply too young for commercial harvest, overstocked and experiencing suppressed growth. Here an owner should



implement "crop tree release" by deadening weed trees with a chainsaw, thereby assuring a future forest with well-spaced, highly desirable crop trees.

With precision forestry, essentially all crop trees are allowed to reach their economic maturity rather than sacrificed (harvested) too early.

Rusty Evans writes a weekly column for The Leaf-Chronicle. The University of Tennessee Agriculture Extension Service office in Clarksville, located at 1030-A Cumberland Heights Road, can be reached at 648-5725.

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