

# Designer Pine Straw Mulch: Biology, Production and Marketing<sup>1</sup>

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The objectives of this abstract are to provide baseline information about pine straw as a special forest product and to explore the application of organically-derived colorants as a way of adding value and enhancing attractiveness and marketability.

Pine straw is a very attractive, cost effective and versatile mulch. Its shiny brown color can provide a nice contrast to lift specimen materials from predominantly green landscapes and can aesthetically soften rough landscape spots and structures. At recommended application rates, by weight it can mulch 3 to 4 times more area than wood chips or other organic mulches. Because of its many functional and environmental advantages, its demand is sky-rocketing. Although it is a versatile mulch, it has a few minor shortcomings, mainly its tendency to discolor (to gray) after extended exposure to light, a slow release of its nutrients and its packaging as a square bale which restricts its transport and storage.

Pine species suitable for pine straw harvesting includes longleaf, slash, loblolly and other pines whose needles are at least 6 inches long to allow mechanical baling. But with the prospects of bagging, even short-needled pines such as shortleaf pine can be tapped for this special forest product. Harvesting pine straw can be very profitable and can generate yearly incomes (\$400 to \$800/acre) that exceed incomes from timber and pulpwood. Straw harvesting starts at the 8<sup>th</sup> year for loblolly pine, 10<sup>th</sup> year for slash pine and 12<sup>th</sup> year for longleaf and can go on until the trees are harvested. Straw yield per acres is directly related to stem basal area and ranges from 2000 lbs/acre with low tree density agroforestry configurations to 6000 lbs/acre with high density traditional forest plantations of loblolly pine. Site quality can positively impact straw yield. Sites that are highly erodible should not be used for pine straw harvesting. Continuous harvesting of pine straw can have negative effects. We now know that harvesting continuously for 4 years can cause

timber volume growth reduction, increase in soil erosion, and depletion of essential nutrients especially nitrogen. Allowing a rest period by harvesting every other year can have significant effect in minimizing these negative impacts. Fertilizer applications based on the rates of removal (pine straw harvest) can prevent nutritional impoverishment of the soil. For instance nutrient (nitrogen) depletion as a result of pine straw harvesting ranges from 17 lbs/acre in very low tree density to a high 68 lbs/acre in very high density traditional forest plantations. At the current price of complete fertilizer (\$215/ton), the cost of replacing the 3 major elements (NPK) would entail only a small amount of \$6.12 to \$23.73/acre for low and high tree density stands, respectively. Presently, marketing pine straw is done in two ways: 1) the landowner rakes, bales and sells it directly to consumers and retailers such as K-Mark, Wal-Mart, Home Depot, nurseries, and landscapers, and 2) the landowner sells it to a pine straw company that rakes, bales and markets the pine straw. A minor marketing method is on a stand lease basis. The most common delivery system is still through baling and some drawbacks of this system have been raised by customers.

The designer pine straw mulch is a new development as a means of enhancing marketability and providing more options for landscapers to design more visually exciting landscapes, including indoorscapes. This allows customizations based on customers' needs. The designer pine straw mulch, which is pounced by applying organically-derived colorant, comes in blue, black, brown, gold, green, red and rosewood. Results of our studies showed that the colorants would keep well for a year and that they are environmentally-friendly with respect to soil reaction, respiration, temperature and moisture, as well as weed control. It is niche-marketed and therefore its competitive advantage lies in the total product and much less on price. Because of this narrowly defined market niche, it is typically offered at premium prices. Based on an additional

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cost production of \$0.77 per bale of 30 lbs, pricing can be very attractive and on can reasonably make 30 to 50% more profit without

compromising, its functionality as a mulch and the environment. This special product promises a new dimension in indoor and outdoor landscaping and more choices for highly discriminating customers.