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# Natural turfgrass keeps giving and giving

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Athletic Turf News

By: Jim Novak, Turfgrass Producers International

We all know that natural turfgrass provides numerous environmental benefits but not many people know that the growing and harvesting of turfgrass sod also plays a role in good stewardship.



Although some casual observers might think that turfgrass sod producers are selling their farms an inch at a time, research suggests they are actually "growing" more topsoil as a result of sound farming practices and the natural growth characteristics of turfgrass.

The question of soil depletion from sod harvesting comes up time and again, but research conducted some thirty years ago confirmed that when it comes to nature, turfgrass sod farmers give back more than they take.

Dr. C. Richard Skogley, a professor at the University of Rhode Island from 1960 -1990, summed up the findings of two separate research studies in a single statement several decades ago in which he stated, "... measurements have been made which clearly show that turfgrass sod farming is not a soil depleting enterprise when compared to other, accepted, routine agricultural enterprises. The studies have indicated that the age of the stand and harvesting method can vary significantly and influence soil losses. Data obtained also reaffirmed that soils are improved through grass production as a result of incorporation of large amounts of organic matter."

Skogley also stated, "When sod is harvested, most of the grass root system is left in the soil; sod returns the equivalent of nearly four tons of organic matter per acre to the soil each year; the thickness of the root layer removed, with soil attached in harvested sod is in the range of 0.36 inches to 0.21 inches."

Dr. Skogley's research (1) also showed that sod fields contained an average difference of 1.9% more organic matter.

R.W. Sheard and V. Van Patter of the University of Guelph, Ontario (2) reported, "Grass plants add organic matter to the soil by the decay of old roots and shoots while living and following harvesting by the plowing-in of root remains; thatch may be mistaken in part for mineral soil by those unfamiliar with the turfgrass sod industry, resulting in over-estimating soil removal; the depth of soil removed in turfgrass harvesting averaged 0.37 inches based on eight different study sites."



For those skeptics who might want to challenge the research, you can take your case to the U.S. Internal Revenue Service. The IRS agrees with the research findings. In IRS Ruling 79-267 they state, "The soil that is removed with each harvest of [turfgrass] sod is partially replenished through the decomposition of grass roots that remain in the soil and through the addition of fertilizer and lime to the soil. As a result of these farming techniques, there is no measureable reduction in the volume of soil present. The soil created by the taxpayer's agricultural methods is not subject to the depletion allowance."



(Images by Jim Novak, TPI)

It has been conservatively estimated that winds account for about one billion tons of soil erosion each year in the United States. When this estimate is added to the four billion tons of soil washed annually from the land, gross soil erosion in the U.S. is about five billion tons annually. (2)

As we become more and more aware of our environment it should be comforting to know that when it comes to natural turfgrass, whether it's on a farm, in our own backyard or on a sports field, it significantly replenishes our limited natural resources. It also reduces soil erosion and after being filtered through the grass leaf, thatch and root structures it allows water to slowly infiltrate into the ground and surface water systems

Work by Skaradowski and Sullivan (4) found that sod production fields increased in organic matter with time. Assuming that a 6-inch depth of soil on an acre weighs 1,000 tons, then this represents 19 tons per acre returned to the soil. Based on a five-year study, it could be concluded that the sod operation had added the equivalent of nearly four tons of organic matter to the soil each year.

The conclusion: When it comes to our environment, natural turfgrass just keeps on giving and giving.

1. Skogley, C.R. and B.B. Hesselstine. 1978. Soil Loss and Organic Matter Return in Sod Production. University of Rhode Island, Kingston, RI
2. Sheard, R.W. and Van Patter, M 1978. Soil Modification During Nursery Sod Production, Department of Land Resource Science, Ontario Agricultural College, University of Guelph.
3. Pimental D. and E.T.C Terhune, ed. Al, 1976. "Land Degradation: Effects on Food and Energy Resources, Science. October 8. 1976, Volume 194. Page 150.
4. Skaradowski, S. and W.M. Sullivan. 1995. The Effects of Commercial Sod Production on Soil Dynamics. American



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