Crumb Rubber Sublayer Reduces Nutrient Leaching in Sand Putting Greens. (C05-stier103707-Oral)

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Abstract:

United States Golf Association (USGA) putting green construction standards function to provide efficient water infiltration to allow play during wet periods while sustaining a desirable stand of turfgrass. Potential exists for turf chemicals to be leached through the profile and released into local water systems, especially during turf establishment. A series of laboratory column tests and a field study were performed to analyze the adsorptive properties of tire rubber for nitrogen and phosphorus when applied as a distinct subsurface drainage or intermediate layer in golf course greens. A 10 cm tire rubber drainage layer replacing traditional pea gravel reduced nitrate concentrations in water passing through a putting green profile by 56.8 percent. Water pH remained stable, turfgrass growth was not impeded, and water movement through the putting green profile was consistent with a USGA profile. The granulated tires were approximately 3x lighter than the equally sized pea gravel, making the rubber material easier to transport and install. Both properties are beneficial for green construction near environmentally sensitive water sources and on soft foundations.

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