Science Societies

Prolonged fairway reflectance interference by colorant application

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Graduate student Nate Leiby employing a multispectral radiometer to measure canopy reflectance.

Turfgrass researchers increasingly use multispectral radiometry to rapidly and resolutely assess turfgrass canopy color, density, nitrogen status, and abiotic or biotic stress(es). Yet measures of turfgrass plots recently treated (<24 hours) by a synthetic colorant or colorant combination product constitute a recognized preclusion to accurate use of multispectral radiometry.

New research in *Agricultural & Environmental Letters* reports on a managed creeping bentgrass golf course fairway receiving a semi-monthly spray treatment of a commercially available synthetic Cu II phthalocyanine colorant (CPC) in a petroleum-derived spray oil (PDSO) plant defense activator (Civitas Pre-M1xed Turf Defense) and/or soluble N fertilizer. Results showed the PDSO+CPC treatment significantly improved canopy color and growth rate compared with N-treated or untreated plots. Yet mean normalized differential vegetative index (NDVI), measured 1 to 10 days after treatment, showed no main effect of the PDSO+CPC treatment. While otherwise dependably correlated with turfgrass shoot growth in season, NDVI was artificially deflated by reduced 810-nm reflectance from PDSO+CPC treated fairway plots. The combination PDSO+CPC treatments can adversely influence vegetative indices for up to 240 hours following application, comprising a tenfold increase in duration over previous reports.

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Leiby, N.L., & Schlossberg, M.J. (2022). Reduced creeping bentgrass fairway reflectance following synthetic colorant application. *Agricultural & Environmental Letters*, *7*(1), e20064. **https://doi.org/10.1002/ael2.20064**

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