



Prolonged fairway reflectance interference by colorant application

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

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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-Mixed 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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