

# GUIDELINES FOR SLAN INTERPRETATION



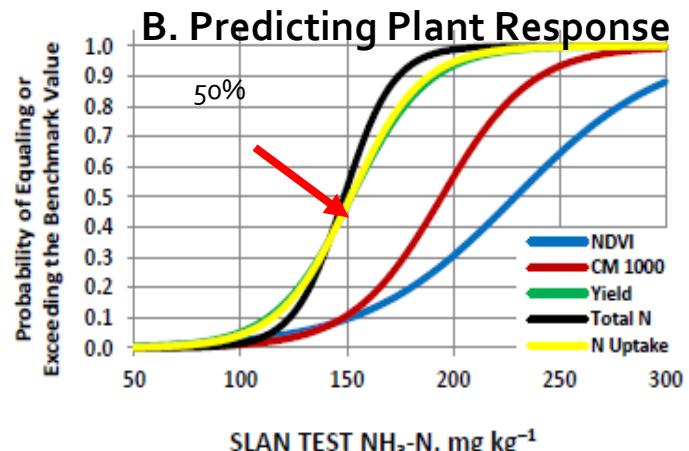
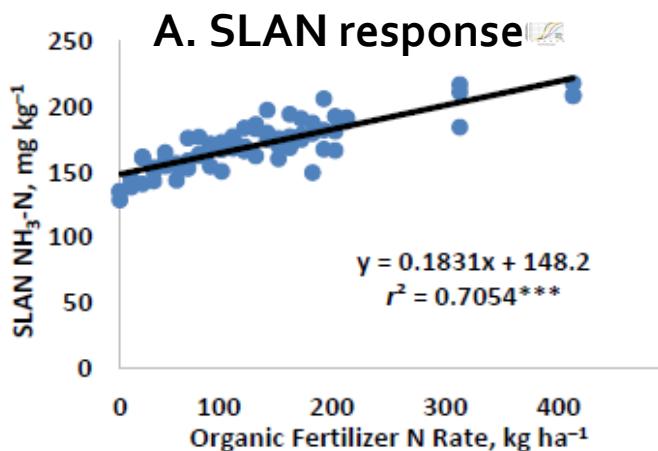
TECH MEMO 0317-1

## SOLVITA LABILE AMINO-N (SLAN) AND CO<sub>2</sub>-BURST

CO<sub>2</sub>-Burst and SLAN provide different insights into soil qualities that can help growers understand soil improvement and better manage nitrogen applications. CO<sub>2</sub>-burst measures the raw biological activity of microbes as they consume organic residues. SLAN shows the biochemical reserves of nitrogen in amino forms. Both traits are associated with soil health but not necessarily mutually causative. New research shows how Solvita SLAN results may be very useful where fertilization systems include organic nitrogen as found in manures and manure-composts.

Research plots conducted at UConn since 2007 are indicating that CO<sub>2</sub>-Burst and SLAN tests are co-indicators of biological soil quality and plant response to organic-N. **Graph A** below shows SLAN soil results to added organic-N amendments and in **(B)** shows plant response to observed SLAN levels. These data confirm “capture” by soil of the org-N fraction supplied (as composted turkey manure) and a direct yield-response fitting a probability function that may help guide future actions.

A research goal with these tests is to help spare nitrogen if it is not needed for additional yield. Given a high likelihood of N-release due to soil SLAN biology (**Figure B**) then withholding N will not cause yield drops and would spare N-losses and environmental effects. SLAN data was corroborated by CO<sub>2</sub>-Burst indicating biological activity is involved, and this bolsters the conclusion of soil improvement and improved N-response. Therefore, both tests together provide important insights <sup>1</sup>



These data confirmed a relationship of Solvita SLAN to correlated to an equivalent yield of turf grass with 150-175 kg/ha N rates. This N level may be greater or lesser for other crops, therefore local calibration is required to pinpoint the appropriate probability response to any given cropping system. In this multi-year study, Solvita CO<sub>2</sub> also gave a significant response to amendments but of a smaller magnitude (compared to background). In this case the commercial manure-compost employed was stable to the extent that it may not substantially increase biological activity, while still resulting in soil improvement and yield growth. Solvita tests help explain real behavior in the soil-plant system.

<sup>1</sup> Guillard K, D Moore, and W Brinton. (2016) Solvita® Soil Test Kits To Categorize Turfgrass Site Responsiveness To Nitrogen Fertilization – 2016 RESULTS UConn Turf Plot Research Report, UConn Annual Reports 2015-2016