



SDI FINAL EVALUATION FORM 1.1

PART 1:

Journal Name:	Asian Journal of Soil Science and Plant Nutrition
Manuscript Number:	Ms_AJSSPN_43886
Title of the Manuscript:	Predicting Maize Performance Using Normalized Difference Vegetation Index and Nitrogen Application
New title:	Prediction of Nitrogen Application in Maize Based on the Normalized Difference Vegetation Index (NDVI)
Type of Article:	Original Research Article

PART 2:

FINAL EVALUATOR'S comments on revised paper (if any)	Authors' response to final evaluator's comments
After two tries the author(s) complied with the minimum required documentation. At a minimum, the conclusion has to be changed to indicate that these results are very preliminary. Publications with much stronger results have had much more moderate claims. Blackmer and Schepers (1996) showed that NVDI was not related to grain yield at higher N fertility. Teal et al. (2006) had much higher correlation to yield ($r^2 = 0.77$) but indicated that this technology was only affective at V8. Inman et al. (2007) was very cautious about their inference with a much higher correlation to yield. Aparicioa et al (2000) showed this technology was only effective in wheat when used post heading when LAI was less than 3. Raun et al. (2001) incorporated change in NDVI over time and improved their prediction of yield ($R^2=0.5$). This technology cannot be used by itself to predict yield. The results of this paper point this out with a significant relationship to yield but capable of accounting for less than 50%. As a decision-making tool this is less capable than a coin toss. A much more broadly applied tool for making decisions of whether or not to add supplemental N is the Magdoff test. It is based on over 900 experimental results over a number of years, locations and hybrids (Blackmer et al. 1988). Soil samples are taken at approximately the same stage as the NVDI measurements were taken in this manuscript. The grain yield predictability of that test is 80%. The conclusions claimed in this manuscript are misleading especially since there are much more robust tests that can be used to predict yield and the necessity to add supplemental N. The assertion that grain yield is dependent upon biomass is incorrect. Loussaert et al (2017) showed male sterile hybrids had greater grain yield than their male fertile counterpart irrespective of the plant biomass. They also showed that improved ear development via male sterility could stimulate plant biomass. T.M. Blackmer, J.S. Schepers. Aerial Photography to Detect Nitrogen Stress in Corn. J. Plant Physiol., 1996., 148, 440-444. R. K. Teal, B. Tubana, K. Girma, K. W. Freeman, D. B. Arnall, O. Walsh and W. R. Raun. In-Season Prediction of Corn Grain Yield Potential Using Normalized Difference Vegetation Index. Agron J., 2006, 98:1488-1496 D. Inman, R. Khosla, R. M. Reich, D. G. Westfall. Active remote sensing and grain yield in irrigated maize. Precision Agrriculture, 2007, 8:241-252. N. Aparicioa, D. Villegasa, J. Casadesusb, J. L. Arausc and C. Royo. Spectral Vegetation Indices as Nondestructive Tools for Determining Durum Wheat Yield. Agron J., 2000, 92:83-91. William R. Raun, John B. Solieb, Gordon V. Johnsona, Marvin L. Stoneb, Erna V. Lukinaa, Wade E. Thomasona and James S. Schepers. In-Season Prediction of Potential Grain Yield in Winter Wheat Using Canopy Reflectance Agron J., 2001, 93:131-138. Blackmer, A.M.; Pottker, D.; Cerrato, M.E.; Webb, J. Correlations between Soil Nitrate	Thank you for your wonderful suggestions and thoroughness. The suggestion has been adopted and stated.



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Concentrations in Late Spring and Corn Yields in Iowa. J. Prod. Agric. 1988, 2, 103-109. Magdoff, F.R. Understanding the Magdoff pre-sidedress nitrate test for corn. J. Prod. Agric. 1991, 4, 297–305. Loussaert, D.; DeBruin, J.; San Martin, J.P.; Schussler, J.; Pape, R.; Clapp, J.; Mongar, N.; Fox, T.; Albertsen, M.; Trimnell, M.; et al. Genetic Male Sterility (Ms44) Increases Maize Grain Yield. Crop Sci. 2017, 57, 2718–2728.	
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