Depth Evaluation of P Loading in Leaching Assessment of Manure-Amended Soils. (S11-nair101534-Poster)

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Abstract:

Vertical movement of phosphorus (P) is an important transport pathway in some sandy soils. It is necessary to account for the depth of elevated P concentrations from previous loading to predict subsequent available P retention capacity of a given soil volume. Risk assessment of P for leaching-prone soils requires that a valid and practical indicator of the affected depth be included in the assessment protocol for nutrient management using the P Index. Several approaches to determine depth to background P levels were evaluated, including a 'quick P test' which can be conducted directly in the field, conventional Mehlich 1 soil P, and degree of P saturation (DPS). The 'quick P test' involves testing a small amount (less than 0.5 g) of soil with reagents used in the phosphomolybdate blue colorimetric method for P determination. Calculation of DPS makes use of P, Al, and Fe determined in the same Mehlich 1 extraction. Analyses were conducted by 5-cm depth increments and by horizon for two dairy sprayfields and two poultry manure application sites. Results show that the 'quick P test' and Mehlich 1 P correspond very closely, and indicate similar depth to background levels. Values of DPS also showed similar trends with depth. Data show that the 'quick P test' will be a reliable and practical field indicator of depth to background P concentrations.

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