

Knowing your stuff – Mitigation before application

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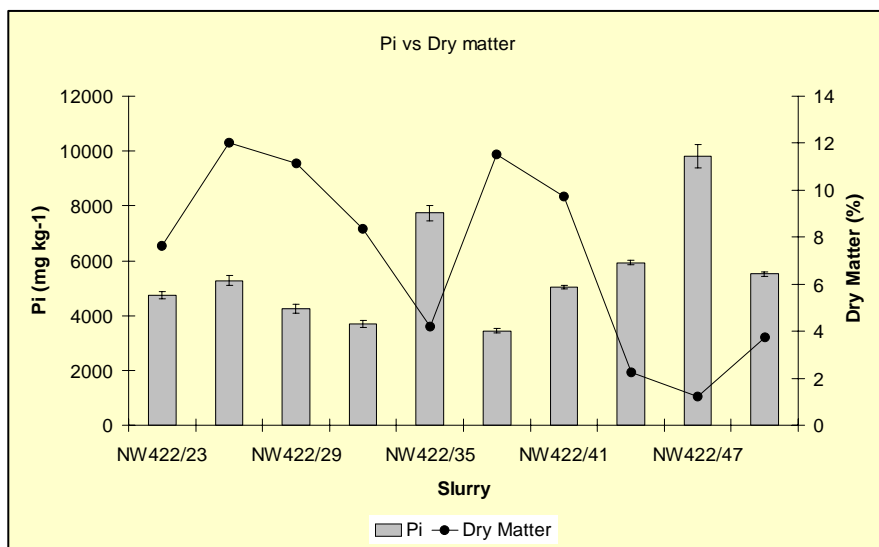
Abstract

Slurry application to soil is a source of available phosphorus (P). Knowledge of P forms in slurry is a fundamental tool to understanding P dynamics in soil-slurry-water systems and the mechanisms responsible for the release of potentially available forms to water course over time. Indeed, water extractable P (WEP) has been correlated to runoff events in agricultural systems. Therefore, the identification of water 'extractable' total, inorganic and organic P in slurry is fundamental.

This information can help identify the potential for slurry P release from soil and transport to water, so we can attempt mitigation before slurry application,



through knowledge of how much and what type of P we will 'actually' apply. That this 'prior' knowledge on WEP before slurry application is important is exemplified in a study which comprised ten fresh slurry samples collected from different farms in Devon (UK). The WEP was extracted according to Kleinman et al. (2006). Dry matter content varied between 1.2 and 12.0%, and the inorganic P in the WEP ranged from 3440 to 9813 mg kg⁻¹ (average 5544 mg kg⁻¹).



Within this context it is clear that slurry applications to agricultural land based on methods of applying a certain volume (e.g. 50 m³) per area (ha) will provide slurries with different P leaching potential, as exemplified by the wide range of WEP contents in our study.

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References

Peter J. A. Kleinman, Andrew N. Sharpley, Ann M. Wolf, Douglas B. Beegle, Herschel A. Elliott, Jennifer L. Weld, Robin Brandt. 2006. Developing an Environmental Manure Test for the Phosphorus Index. [Communications in Soil Science and Plant Analysis](#). 37 (15-20): 2137 – 2155.