

OBTAINING A P SOURCE COEFFICIENT FOR THE PENNSYLVANIA PHOSPHORUS INDEX

Testing of manures and biosolids is key to minimizing losses of phosphorus (P) from agricultural soils receiving these materials as amendments. A large body of work now shows that P loss in runoff water can range widely with different manures and biosolids that are land applied. Recognizing these differences, the Pennsylvania P Index includes a factor, the P Source Coefficient, to represent the relative availability of P in manures and biosolids to runoff.

Obtaining a P Source Coefficient for a manure or biosolid that is to be land applied can be achieved by referring to the generic values for P Source Coefficients in Table 1 of the Pennsylvania P Index, or, by submitting manures and biosolids to a laboratory for testing. While testing entails payment of an analytical fee, the advantage of testing is that an accurate P Source Coefficient is obtained that is specific to particular manures or biosolids.

Sampling of manures and biosolids

Samples submitted for testing should represent the manure or biosolids as they are land applied. This means sampling should be conducted shortly before applying the materials. Changes in the properties of these materials can occur with time, both in storage and following application. Samples should be submitted for analysis as soon as possible after collection, and, refrigerated if this cannot be done immediately. Specific information on appropriate sampling procedures can be obtained at: <http://uwlab.soils.wisc.edu/pubs/A3769.pdf>.

Testing

Pennsylvania has recently adopted a testing protocol that has been adopted by laboratories across North America. The protocol involves extracting manure with deionized water (solution:solids = 100:1) for one hour and analyzing the extract by inductively coupled plasma atomic emission spectroscopy. Laboratories are referred to the Penn State Agricultural Analytical Laboratory's web site to obtain specific information on this protocol: <http://www.aasl.psu.edu/>.

Deriving a P Source Coefficient

The following algorithm is used to convert water extractable P (expressed as % water extractable P in dry matter) to the P Source Coefficient:

$$P \text{ Source Coefficient} = 1.17 \times \% \text{ water extractable P.}$$

Reporting P Source Coefficient

Unless additional information is requested by the producer, laboratories should report the P Source Coefficient only.

The Pennsylvania Phosphorus Index can be found at:
http://panutrientmgmt.cas.psu.edu/pdf/phosphorus_index_factsheet.pdf

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