

USE A FERTILIZER RECOMMENDATION SYSTEM WITH SOIL TESTING

first DRAFT

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Description

Using a fertilizer recommendation system, using soil test data [1], the input of nutrients will be more in agreement with the real needs of the crop.

Rationale, mechanism of action

Lower nutrient losses may be expected by the implementation of a fertilizer recommendation system. For P, a simple P-input versus P-output balance can be used. A recommendation system for N will be more complicated. The needed N includes the total uptake by the crop (roots included) + the accepted residual nitrogen at harvest time. This N-need must be compensated by the N_{\min} before sowing or planting + the N released from SOM and applied organic material. The difference between both gives the N to be applied.

Applicability

Some factors of the N-balance are known, others have to be determined or estimated.

Effectiveness, including certainty

This is the most effective way in determining the needed N fertilization. Using a N-balance described above, the N released during the vegetation period is the most uncertain factor, especially the N released from SOM.

Time frame

The introduction of a fertilizer recommendation can be done any time.

Environmental side-effect/ pollution swapping

No problems are expected.

Relevance, potential for targeting, administrative handling, control

Using a good fertilizer recommendation system is the best guarantee to avoid large losses of nutrients. If the recommendation is given by an accredited laboratory, the administration has to agree with the proposed fertilization. Control is only possible on paper and not in the field, except the residual mineral nitrogen at harvest time is exceptionally high.

Costs: investment, labor and acceptance by farmers

The cost for sampling, analyses and the setup of the recommendation is rather high. This is the main constraint for farmers.

References

[1] Sharpley, A.N., J. Weld, and P.J.A. Kleinman, 2005. Soil Testing. SERA-17, Description of BMPs. http://www.sera17.ext.vt.edu/Documents/BMP_soil_testing.pdf