



World Phosphorus Use Efficiency in Cereal Crops

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ABSTRACT

A good title identifies the subject and purpose of the study. Use common names of crops where possible, and avoid abbreviations. Length is 12 words or less.

Author(s).

Abstract < 250 words for papers and < 150 words for notes. Identify crops or organisms involved, soil type, chemicals, and other details important for using results. Do not cite figures, tables, or references. Avoid equations.

Rationale

A current estimate of global phosphorus use efficiency (PUE) for cereal production is not available.

Objectives

The objectives of this paper were to estimate PUE for cereal crops grown in the world and to review methods for improvement.

Methods

Phosphorus use efficiency was determined using world cereal harvested area, total grain production, and P fertilizer consumption from 1961 to 2013, in addition to assumptions established from previous literature. World PUE of cereal crops was calculated using both balance and difference methods. Using the balance method, cereal grain P uptake is divided by the P fertilizer applied. Alternatively, the difference method accounts for P coming from the soil and that is subtracted from applied P. Utilized in this analysis is the estimate that cereal production accounts for 61% of the total harvested cropland.

Results

Phosphorus use efficiency estimated using the balance method was 77%. Using the difference method, PUE for cereal production in the world was estimated to be 16%.

Reasons for conducting this research

Goal(s) to be obtained.

Procedures to be used.

Major findings of your experiments.

Relevant usefulness of your studies.

Conclusions

Cereal grain yields increased from 1.35 to 3.90 Mg ha⁻¹ between 1961 and 2013. In 1961, the world's fertilizer P consumption was 4,770,182 Mg and increased to 16,662,470 Mg of P fertilizer by 2013. This represents a 3.5x increase in P fertilizer consumption over 53 yr.

Period.

Phosphorus use efficiency was determined using cereal crops.

comma,

Phosphorus use efficiency was determined using world cereal harvested area, total grain production, and P fertilizer consumption.

semicolon ;

Phosphorus is abundant in soil; however, the concentration of plant available P in the soil solution is generally low.

colon :

Cereal crops: maize, wheat, and rice.

parenthesis ()

The procedure to estimate PUE (balance and difference methods) was accomplished by calculating the ratio.

etc.

Cereal harvested area (ha), and cereal production (Mg) data was collected for maize, rice, wheat, sorghum etc.

e.g.

Several major soil orders are deficient in P, e.g., Oxisols, Ultisols, and Spodosols.

i.e.

In acidic soils, P can precipitate as minerals of Fe, and Al i.e. strengite and variscite.

et al.

Syers et al. (2008) or (Syers et al., 2008).

Use to denote a full stop at the end of a statement.

To indicate a break or pause, use a comma.

Used to link within a sentence two independent clauses

Use to introduce an ensuing list.

Used to clarify meaning and add additional information. There must be two.

Indicates that the listed items are not the complete list.

abbr. Latin exempli gratia (for example).

abbr. Latin id est (that is).

abbr. Latin et alii (and others).

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