Soil Phosphorus Fate After 20 Years of Build Up and Draw Down in a Calcareous Soil. (S04-sims101604-Poster)

Authors:

- A.L.Sims* - *University of Minnesota*
- K.R.Hoff - *University of Minnesota*
- J.A.Lamb - *University of Minnesota*

Abstract:

An experiment, initiated in 1982 on a Minnesota Calciaquoll soil, was divided into two phases: the Build Up phase (1982-1991) when Phosphorus (P) fertilizer was broadcast at rates of 0, 24, and 48 kg P/ha annually; and the Draw Down phase (1991-2000) when no further P fertilizer was applied. Plots were maintained through 2000, with spring wheat grown continuously during the experiment. Soil samples, collected after harvest during the Draw Down phase to a depth of 15 cm, were subjected to a sequential fractionation procedure separating soil P pools that vary in availability to a growing crop. In 1991 readily available P pools in the 24 and 48 kg P/ha treatments were 3.5 and 6.5 times greater than the control (0 kg P), respectively. During the Draw Down phase, readily available P declined in all treatments, but the 24 and 48 kg P/ha treatments declined at a rate 5-8 times greater than the control. Moderately available P was increased with increasing rates of P fertilizer and also declined during the Draw Down hase with little change in the control. Highly unavailable P also increased with the earlier applications of P fertilizer and tended to increase during the Draw Down phase.

Corresponding Author Information:

Albert Sims
University of Minnesota-NWROC
2900 University Ave.
Crookston, MN 56716

phone: 218-281-8619
fax: 218-281-8603
e-mail: simsx008@tc.umn.edu

Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 9:00-11:00 am
Poster Board Number: 2220

Keywords:

Soil Phosphorus, Phosphorus Fractionation, Long Term Phosphorus Fertilizer Effects