Effects of Tillage and Limestone Application on Soil Profile pH Changes. (S08-ebelhar151239-Poster)

Authors:

- S.A.Ebelhar* - *University of Illinois*
- E.C.Varsa - *Southern Illinois University*
- A.H.Anderson - *University of Illinois*
- C.D.Hart - *University of Illinois*
- T.D.Wyciskalla - *Southern Illinois University*

Abstract:

The objectives of this field study were to evaluate the effects of tillage, lime rate and time of limestone application on changes in soil acidity for an already acidic soil. Treatments consisted of a no lime check, two no-tillage systems with either a one half rate of recommended lime application every two years or an annual application of 450 kg pelleted lime ha-1, a continuous annual chisel tillage system with a full rate of lime applied every four years, and two inversion systems utilizing a rotary tiller where the full rate of was mixed into the soil followed by either continuous chisel tillage or continuous no-tillage. Full lime rates ranged from 4.5 ton ha-1 at Brownstown to 9.0 ton ha-1 at Dixon Springs and Carbondale. Soil samples were collected annually in increments of 5 cm to a 30 cm depth for determination of soil pH. After two years, the continuous chisel system increased soil pH in the top 10 cm and had grain yields comparable to the no-tillage system. The no-tillage system had only a slight increase in pH in the surface 5 cm of soil. The inversion treatments only seemed to mix the lime thoroughly in the top 10-15 cm. The pelleted lime had little effect on soil acidity.

Corresponding Author Information:

Steve Ebelhar
University of Illinois
Dixon Springs Ag. Center
Simpson, IL 62985

phone: 618-695-2790
fax: 618-695-2492
e-mail: sebelhar@uiuc.edu

Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 9:00-11:00 am
Poster Board Number: 2029

Keywords:
tillage systems, limestone application, soil pH changes, soil acidity