Relationship of Soil Aluminum Saturation and Winter Wheat Production. (S04-wise084245-Oral)

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Abstract:

Soil acidity is a major problem in the Great Plains region that is primarily used for grain, or forage and grain winter wheat production. This field study was conducted to determine the critical level of soil aluminum (Al) saturation for winter wheat on production induced acid soils. The pH ranged from 4.2 to 4.7, and Al saturation ranged from 13 to 37% of the effective cation exchange capacity. Forage yields ranged from 50 to 2400 lbs./acre. Relative forage yields were highly correlated with soil pH (r=.905), and Al saturation (r=.894). Grain yields ranged from 0 to 66 bu/A. The relative grain yields were highly correlated with soil pH (r=.749) and Al saturation (r=.830). Forage and grain yields started decreasing at 14% Al saturation, which suggests this is the critical Al level for this soil. However, other soils showed different critical Al saturation values. Therefore, critical Al saturation may be affected by soil properties.

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Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 2:15 pm

Keywords:

Winter wheat, Al saturation, pH, acid soil