Article title	Performance of Urea Enhanced with Sulfur.
Authors	Upendra Singh, Deborah Hellums, Wendie Bible, Vaughn Henry, Joaquin Sanabria & Xinhua (Frank) Yin
Abstract	Sulfur (S) is a secondary macronutrient required in amounts like phosphorus to support and sustain agricultural productivity. Plant-available SO4-S is prone to leaching in coarse-textured soils when applied as sulfate-S fertilizer. Availability of SO4-S to plants is also reduced by adsorption of SO4-S in most clay soils. Application of elemental S (ES) will reduce leaching losses and adsorption; however, the release of SO4-S to match plant demand may not be adequate. ES must be oxidized by micro-organisms to SO42- before it is an effective source of plant nutrition. Under field conditions, temperature, rainfall, tillage, and residue management affected the dispersion of ES fertilizer granules. Incubation studies of urea enhanced with ES conducted under laboratory and field conditions also showed that the method of application and the type of fertilizer strongly influenced S oxidation. The effect of ES and ammonium sulfate (AS) on NH3 volatilization loss following urea application was quantified. Field trial response of S on maize yield and nutrient uptake on application of urea with S is also presented. The following ES and SO4-S fertilizers were evaluated: commercial ES (88% S), AS (24% S), urea ammonium sulfate (5.5% S), micronized ES (95% S), urea enhanced with 13% ES, and urea enhanced with 13% S (ES and SO4-S).
Publication date	2017-10-24
Article link	https://scisoc.confex.com/scisoc/2017am/meetingapp.cgi/Paper/105333