



University of Kentucky
UKnowledge

Agronomy Notes

Plant and Soil Sciences

1-1965

Nitrogen Loss from Surface Application

Harold F. Miller
University of Kentucky

Right click to open a feedback form in a new tab to let us know how this document benefits you.

Follow this and additional works at: https://uknowledge.uky.edu/pss_notes

 Part of the [Agronomy and Crop Sciences Commons](#)

Repository Citation

Miller, Harold F., "Nitrogen Loss from Surface Application" (1965). *Agronomy Notes*. 196.
https://uknowledge.uky.edu/pss_notes/196

This Report is brought to you for free and open access by the Plant and Soil Sciences at UKnowledge. It has been accepted for inclusion in Agronomy Notes by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

AGRONOMY NOTES

SOILS • CROPS

Prepared by Department of Agronomy, University of Kentucky Cooperative Extension Service

No. 22

January 1965

NITROGEN LOSS FROM SURFACE APPLICATION

Research work has shown that considerable nitrogen can be lost from surface applied ammonia-containing fertilizers. The nitrogen is lost due to the formation of ammonia which escapes into the air. Soil and weather conditions encouraging this loss are high temperature, moist soils, high pH and source of nitrogen.

In a laboratory study conducted at the Kentucky Agricultural Experiment Station considerable nitrogen was lost through volatilization from surface application of crystalline urea. This study furnished evidence that volatilization losses of nitrogen from surface-applied urea can be of practical importance under certain conditions. The work indicated that urea topdressed on a moist soil under conditions of high temperature and/or high soil pH would be susceptible to sizeable losses of ammonia through volatilization.

Recent studies at Southern Illinois University show the following losses from surface applications of ammonia-containing fertilizers on bare soil and on clipped fescue sod.

Source	Fescue Sod	Bare Sod
Ammonium Nitrate	2.3%	1.3%
Ammonium Sulfate	4.1%	5.8%
Nitrogen Solution with Urea (30-0-0)	21.2%	5.8%
Pelleted Urea	46.4%	17.2%

Air temperature during the study was 74°F.

The nitrogen loss from surface applications is reduced by cool temperatures, dry soil and acid soils.

Where it is feasible to mix the nitrogen fertilizer with the soil, the losses are reduced.

When nitrogen topdressings are to be made in periods of warm weather during the summer months, it is evident that considerable volatilization loss will occur when fertilizers containing urea are applied. This possibility of loss should be taken into account in deciding which fertilizer material should be used for topdressing.

Harold F. Miller

RECEIVED
JAN 14 1965

College of Agriculture & Home Ec.
Library

(To simplify information in this publication, trade names of some products are used. No endorsement is intended, nor is criticism implied of similar products not named.)

Cooperative Extension Work in Agriculture and Home Economics: College of Agriculture and Home Economics, University of Kentucky, Lexington, and the United States Department of Agriculture, cooperating. William A. Seay, Director. Issued in furtherance of the Acts of May 8 and June 30, 1914.