

South Dakota State University
**Open PRAIRIE: Open Public Research Access Institutional
Repository and Information Exchange**

Extension Extra

SDSU Extension

8-1-1988

Drought Will Increase Nitrate Test Levels

James Gerwing
South Dakota State University

Follow this and additional works at: http://openprairie.sdstate.edu/extension_extra

Recommended Citation

Gerwing, James, "Drought Will Increase Nitrate Test Levels" (1988). *Extension Extra*. Paper 255.
http://openprairie.sdstate.edu/extension_extra/255

This Other is brought to you for free and open access by the SDSU Extension at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Extension Extra by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.



Extension Extra

ExEx 8035
August 1988
Plant Science

COLLEGE OF AGRICULTURE & BIOLOGICAL SCIENCES / SOUTH DAKOTA STATE UNIVERSITY / USDA

Drought will Increase Nitrate Test Levels

by James Gerwing, Extension Soils Specialist

Nitrate nitrogen soil test levels will be higher due to drought conditions. In addition to the nitrate that was in soil in spring, many fields received fertilizer and accumulated additional nitrate from the breakdown of crop residues and organic matter during the dry season. Very little of this nitrogen is removed by crops during a dry year as compared to an average year (Table 1).

Nitrate soil test levels after a typical season in South Dakota average 40 lb per acre to a 2 foot depth in recropped fields. After some recent wet years, the average went down to 26 lb but after dry years in the late 70's the average was as high as 76 lbs per acre.

The higher soil test levels this fall will mean less fertilizer N will be needed for next years crop. The key is to soil sample for nitrate nitrogen to determine exactly what the $\text{NO}_3\text{-N}$ test is. The test will accurately measure carryover fertilizer N in addition to the other sources of available N in soil used by plants.

Nitrate nitrogen in the top 2 feet of soil is as efficiently used by crops as fertilizer nitrogen. When making nitrogen fertilizer recommendations, the $\text{NO}_3\text{-N}$ soil test level is subtracted from the total N required by the crop. The total nitrogen requirement of some crops can be calculated from Table 2.

Table 1. Nitrogen Removed by Crops

Crop	Nitrogen Content		
	Grain	Straw	Total
	lb/A		
Wheat			
10 bu	16	8	24
25 bu	72	36	108
Corn			
25 bu	23	12	35
100 bu	90	50	140

Table 2. Nitrogen Recommendations using the 2 foot deep $\text{NO}_3\text{-N}$ soil test.

Crop	Nitrogen Required ^{1/}
Wheat	2.4 x yield
Oats	1.3 x yield
Barley	1.5 x yield
Corn	(1.45 x yield) - 20
Sorghum	1.1 x yield

^{1/} Fertilizer nitrogen to apply is equal to the nitrogen requirement minus soil $\text{NO}_3\text{-N}$ to a 2 foot depth.

This publication and others can be accessed electronically from the SDSU College of Agriculture & Biological Sciences publications page, which is at <http://agbiopubs.sdstate.edu/articles/ExEx8023.pdf>



Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the USDA. Larry Tidemann, Director of Extension, Associate Dean, College of Agriculture & Biological Sciences, South Dakota State University, Brookings. SDSU is an Affirmative Action/Equal Opportunity Employer (Male/Female) and offers all benefits, services, and educational and employment opportunities without regard for ancestry, age, race, citizenship, color, creed, religion, gender, disability, national origin, sexual preference, or Vietnam Era veteran status.