

TECHNICAL NOTES

New Mexico State University Soil Test Interpretation and the 590 Nutrient Management Job Sheet

Background

In 2000, NRCS NM worked with New Mexico State University Cooperative Extension Service and the New Mexico Environment Department to develop the 590 Nutrient Management Job Sheet for conservation planning and especially for Comprehensive Nutrient Management Plans. Part of this effort was to improve NRCS' technical skills in the area of soil testing and fertilizer recommendations. Instructions on how to use the 590 Job Sheet were previously included with this Technical Note.

To reduce duplication the instructions have been revised and incorporated into the 590 Specification in Section IV of the NM FOTG at:

<http://www.nm.nrcs.usda.gov/technical/fotg/section-4/std-specs.html>

Purpose

Soil testing is the key to nutrient management. Without a pre-plant soil test, fertilizing is a guess at best. Most soil testing is very cost effective. Many times growers put on fertilizer as "insurance" instead of testing the soil to see if fertilizer is needed. A \$30 soil test may save as much as \$120/ acre.

NMSU guidelines are **A-114, Test Your Soil**, http://aces.nmsu.edu/pubs/_a/a-114.html and **A-122, Soil Test Interpretations**, http://aces.nmsu.edu/pubs/_a/a-122.html .

Three lab soil test procedures are critical to get soil test results that will ensure that the 590 Nutrient Management Job Sheet is accurate and reliable.

- The soil test must be run with a saturated paste extract for determining soil salinity (Electrical Conductivity, Mg, Ca, and Na). This is needed because the math in the spreadsheet uses the saturated extract scale to compute SAR and ESP and salinity interpretations are based on the saturated paste.
- Soil phosphorus should be determined using the sodium bicarbonate procedures described by Olsen and others in 1954, since NM soils are usually alkaline (pH>7). A Bray test (which uses a mixture of acids) is used for soils with a pH<7 and will usually show too high in available P value for alkaline soils.
- K must be extracted by water. Other solvents do not correlate to the NMSU software.