

N-STaR Protocol for Rice Produced on Clay Soils

In order to better facilitate the incorporation of N-STaR (the Nitrogen-Soil Test for Rice) within the silt loam rice production regions we have developed this handout to assist producers, county agents and consultants with soil sampling and sample submission to the N-STaR soil test lab.

These instructions are for Clay soils only. These instructions should be carefully followed to ensure that the proper N rate recommendation is obtained and properly managed.

Collecting Soil Samples

How do I select a field for N-STaR?

Fields should be selected where best management practices for rice as outlined in the Arkansas Rice Production Handbook can be implemented. Soil samples should be taken for routine soil analysis and the proper rates of P, K, S and Zn should be applied to ensure that yield results are not influenced by these nutrient deficiencies. Field size can vary, but producers should be able to flood within 1 week and be able to maintain flood for at least three weeks following pre-flood nitrogen application.

How do I take 12in soil samples required for N-STaR on clay soils?

Prior to sampling fields, we recommend that you pull up the soil survey and determine the soil textures and series that are represented in the field(s) of interest. This will allow you to determine the best approach for sampling and identify areas in the field that are classified as sandy loam or silt loam textured soils. Soil samples should be taken using a modified bucket which can be obtained from Trent Roberts. These buckets are made to simplify soil sampling to 12 inches. We recommend using at least an 18 volt cordless drill (with extra battery) with a 1 inch ship auger and extension (Irwin or Lennox brand) which can be purchased at most local and chain hardware stores (Lowes, Home Depot). Bushing stops can be obtained from Trent for attachment to the auger extension, which will allow you to set the depth at 12 inches and prevent the auger from sampling any deeper.

How do I handle soil samples?

Currently we request that you take a minimum of 10 samples per field, GPS coordinates are not required, but can be supplied. ***EACH 12 INCH composite soil sample should be placed in a SINGLE quart zip storage bag and labeled accordingly.*** Please make sure that the storage bags are properly closed, because any spilled soil will result in an invalid sample.

Where do I send the soil samples?

Soil samples can be sent to the N-STaR Soil Test Laboratory at the following address and should be accompanied by the N-STaR order form.

N-STaR Soil Test Lab
1354 W. Altheimer Dr.
Fayetteville, AR 72704

How much does the N-STaR analysis cost?

Currently, in-state soil samples will be charged a fee of \$10.00/sample, which equates to \$100.00/field. When sending in your samples please make checks payable to: University of Arkansas N-STaR Lab or we now have the option of billing producers and consultants. Please indicate on your N- STaR order form if you are paying by check or would like to be billed.

When will I get the Nitrogen rate recommendation?

Following sample submission a report will be emailed to the person identified on the sample order form containing the N-STaR nitrogen rate recommendations. Clients will be provided with N rate recommendations corresponding to three yield goals- economical, optimum and maximum. Please be advised that N-STaR is not designed to increase rice yields, but to increase producer profitability through field-specific N rate recommendations. The N rates associated with these relative yield goals assume that all other factors such as P, K, S, Zn and irrigation are non-limiting and will provide the prescription N rate needed to achieve a given relative yield.

How should nitrogen fertilizer be managed?

Recommended rates and application splits for N-STaR will be provided with the N-STaR soil test results. Pre-flood N fertilizer should be applied as urea with the urease inhibitor NBPT. Midseason or boot nitrogen applications will be determined based on the variety.

How should flood be managed?

Fields should be selected that can be flooded within 1 week and maintained for at least 3 weeks following pre-flood nitrogen application. Fields should be managed according to best management practices as outlined in the Rice Production Handbook.

Who do I contact for more information?

Trent Roberts
1354 W. Altheimer Dr.
Fayetteville, AR 72704
Office: 479-575-6752
Cell: 479-935-6546
tlrobert@uada.edu

nstarlab@uark.edu

The University of Arkansas, United States Department of Agriculture, and County Governments Cooperating.

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