I. Abstract
Activities this quarter focused on: 1) having the QAPP approved, 2) conducting crop production activities, and 3) gathering oat and wheat yield and economic data. The 2008-09 wheat and oat data look promising, but this is not surprising given the dry conditions this year which limited yield regardless of nutrient input.

II. Overall Progress and Results by Task

Task 1: Project Administration

Subtask 1.1: USDA-ARS (Harmel) will prepare electronic quarterly progress reports (QPRs) for submission to the TSSWCB. QPRs shall document all activities performed within a quarter and shall be submitted by the 15th of January, April, July and October. QPRs shall be posted on the project website and provided to all project partners. (Month 1-36)

The following actions have been completed during this reporting period:

a) QPR Submitted July 14, 2009.

24% Complete
Subtask 1.2: USDA-ARS will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly. (Month 1-36)

The following actions have been completed during this reporting period:
  a) USDA National Finance Center will submit invoices to TSSWCB on their regular schedule.

  24% Complete

Subtask 1.3: USDA-ARS will host coordination meetings or conference calls with TSSWCB, and any subcontractors as appropriate, at least bi-annually to discuss project activities, project schedule, communication needs, deliverables and other requirements. (Month 1-36)

The following actions have been completed during this reporting period:
  a) Pam Casebolt, Daren Harmel, and Rick Haney met on April 16, 2009 to discuss project activities and progress.

  24% Complete

Subtask 1.4: USDA-ARS (Harmel) will develop the project final report for submission to TSSWCB, EPA, and project partners. (Month 30-36)

The following actions have been completed during this reporting period:
  a) No progress to report.

  0% Complete

Task 2: Conduct field trials on demonstration sites at the USDA-ARS Grassland, Soil and Water Research Center, Temple, TX

Subtask 2.1: Land management on demonstration sites. USDA-ARS (Haney) will establish 10 demonstration sites, including 5 control sites. On each site, tillage, weed and insect control, crop production, and fertilizer application including both organic and inorganic formulations, will be performed. The control sites will be treated the same as the other sites, except will receive no fertilizer. (Month 1-36)

The following actions have been completed during this reporting period:
  a) Corn was planted on one site and sorghum was planted on two sites at the USDA-ARS Grassland, Soil and Water Research Center, Temple, TX. Wheat was also harvested on two sites.

  24% Complete
Subtask 2.2: Data collection on demonstration sites. USDA-ARS (Haney) will gather and record land management, crop yield, and economic data to demonstrate the economic benefits of reduced N application. (Month 4-30)

The following actions have been completed during this reporting period:
   a) Land management, crop yield, and economic data have been collected and are up to date.

24% Complete

Subtask 2.3: Soil sampling on demonstration sites. USDA-ARS (Haney) will collect annual soil samples for testing to determine plant available N. Monthly soil samples may also be collected to track within year plant available N changes. (Month 4-30)

The following actions have been completed during this reporting period:
   a) No progress to report.

0% Complete

Task 3: Conduct field trials on demonstration sites at the USDA-ARS Watersheds, Riesel, TX

Subtask 3.1: Land management on demonstration sites. USDA-ARS (Harmel) will establish 8 demonstration sites, including a control site. On each site, tillage, weed and insect control, crop production, and fertilizer application including both organic and inorganic formulations, will be performed. The control site will be treated the same as the other sites, except will receive no fertilizer. (Month 4-36)

The following actions have been completed during this reporting period:
   a) The 8 demonstration sites planted to corn at the USDA-ARS Grassland, Soil and Water Research Center, Riesel, TX, received herbicide application.

24% Complete
Subtask 3.2: Data collection on demonstration sites. USDA-ARS (Harmel) will gather and record land management, crop yield, and economic data to demonstrate the economic benefits of reduced N application. (Month 4-30)

The following actions have been completed during this reporting period:
   a) Land management, crop yield, and economic data have been collected and are up to date.

   **24% Complete**

Subtask 3.3: Soil sampling on demonstration sites. USDA-ARS (Harmel) will collect annual soil samples for testing to determine plant available N. Monthly soil samples may also be collected to track within year plant available N changes. (Month 4-30)

The following actions have been completed during this reporting period:
   a) No progress to report.

   **0% Complete**

Subtask 3.4: In order to evaluate reductions in N runoff due to use of this enhanced soil test methodology, water quality data will be collected from the Riesel demonstration sites. Storm and base flow water quality samples will be collected and analyzed for NO₃-N, NH₄-N, and PO₄-P. Collection and laboratory analysis of this data is neither federally funded through this project nor utilized as non-federal match for this project. This corroboratory data, critical to documenting the water quality benefits of this project, shall be treated as Secondary Research Data (§B9) in the QAPP. (Month 4-30)

The following actions have been completed during this reporting period:
   a) Runoff N and P data were collected for the April 14, April 28, April 29, and May 3 runoff events.

   **24% Complete**
Task 4: Establish demonstration sites on private lands

Subtask 4.1: Land management on demonstration sites. Cooperators will perform tillage, weed and insect control, fertilizer application, and crop production on demonstration sites. All cooperators will set up at least one control plot from which to determine plant available N contributed by the soil with no fertilizer addition. Cooperators may also choose to establish plots that will be fertilized with N rates based on the enhanced N soil test. (Month 4-36)

The following actions have been completed during this reporting period:
  a) Oats were harvested on the Schrank demonstration site. Wheat was harvested on the two Shawver demonstration sites. Corn was planted on the Kamas and Henson demonstrations sites (planted earlier in spring but we failed to report this).

24% Complete

Subtask 4.2: Data collection on control sites. Cooperators will gather and record land management and crop yield data for the demonstration sites. (Month 4-36)

The following actions have been completed during this reporting period:
  a) Data record sheets were provided to private landowner cooperators.
  b) Data are up to date.

24% Complete

Subtask 4.3: Soil sampling on demonstration sites. Cooperators or USDA-ARS (Haney or Harmel) will collect annual soil samples for soil test analysis to determine plant available N. (Month 4-30)

The following actions have been completed during this reporting period:
  a) No progress to report.

0% Complete
Subtask 4.4: Compensate cooperator/producers for establishing and managing demonstration sites on private lands. Specifically, cooperators/producers will be partially reimbursed (40%) for costs such as seed, fertilizer, fuel, and custom harvesting incurred to conduct land management and data collection on demonstration sites. Cooperators/producers will provide non-federal match (60%) for demonstration activities. (Month 4-36)

The following actions have been completed during this reporting period:
   a) No progress to report.

   **24% Complete**

Task 5: Conduct soil tests to estimate plant available N at all demonstration sites

Subtask 5.1: Soil processing and testing. At the USDA-ARS Grassland, Soil, and Water Research Laboratory in Temple, TX, USDA-ARS (Haney) will process and test soil samples from all demonstration sites. (Month 4-34)

   The following actions have been completed during this reporting period:
   b) No progress to report.

   **0% Complete**

Subtask 5.2: Comparison of N soil test methods. Plant available N estimates as determined with various N soil test methods will be compared to plant N uptake in control sites without fertilizer. (Month 4-36)

   The following actions have been completed during this reporting period:
   a) No progress to report.

   **0% Complete**
Task 6: Quality Assurance

Subtask 6.1: USDA-ARS will contract TWRI to develop a QAPP for activities in Tasks 2.3, 3.3, 4.3, and 5.1 consistent with EPA Requirements for Quality Assurance Project Plans (QA/R-5) (May 2006) and the TSSWCB Environmental Data Quality Management Plan (August 2007). (Month 1-3)

The following actions have been completed during this reporting period:
   a) QAPP approved by EPA on April 29, 2009.

100% Complete

Subtask 6.2: TWRI will submit revisions and necessary amendments to the QAPP as needed. (Month 4-36)

The following actions have been completed during this reporting period:
   a) No progress to report.

0% Complete

Task 7: Outreach and Education

Subtask 7.1: Conduct field days at Temple (2), Riesel (1), and cooperator demonstration sites (1 each). (Month 7-36)

The following actions have been completed during this reporting period:
   a) Rick Haney participated in the Williamson County Crops Tour, which visited the Hajda demonstration site, June 25, 2009. About 40 producers in attendance learned about the project, specifically the enhanced soil test fertilizer recommendations.

0% Complete

Subtask 7.2: Make 3 presentations at local and national scientific meetings (such as ASA and ASABE). (Month 1-36)

The following actions have been completed during this reporting period:
   a) No progress to report.

0% Complete
Subtask 7.3: Make presentations at local and regional producer meetings (such as County Farm Bureaus, local soil and water conservation districts, Annual State Meeting of Texas SWCD Directors, seed dealer meetings, fertilizer dealer meetings, and Texas AgriLife Extension Service field days and meetings). (Month 1-36)

The following actions have been completed during this reporting period:
   a) Harmel discussed project with Falls-Limestone SWCD Directors on a tour of the Riesel demonstration site on April 3, 2009.

   24% Complete

Subtask 7.4: Prepare a refereed publication.

The following actions have been completed during this reporting period:
   a) A draft introduction and data tables were produced.

   10% Complete

Subtask 7.5: TWRI will develop and maintain a project website. (Month 4-36)

The following actions have been completed during this reporting period:
   a) The website link is http://n-fertilization.tamu.edu

   50% Complete

III. Related Issues/Current Problems and Favorable or Unusual Developments
   a) None.

IV. Projected Work for Next Quarter
   a) Corn and sorghum will be harvested on private and USDA-ARS demonstration sites.
   b) Soil samples will be collected from the Shawver, Mahler, Melde, Henson, and Kamas demonstration sites.
   c) The project and results to date will be discussed at the Multi-County Field Day, Hamilton, TX, on July 13, 2009.