I. Abstract

This quarter, the QAPP was amended and submitted to the TSSWCB for approval. Preparations continued on litter windrow composting, application and sampling scheduled for May 2012. Runoff monitoring continued this quarter with numerous sampling events occurring after months of drought. Next quarter, the final litter application and coinciding assessment will occur.

II. Overall Progress and Results by Task

TASK 1: Project Administration

Subtask 1.1: *TWRI 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 distributed to all project partners.*

The following actions have been completed during this reporting period:


80% Complete

Subtask 1.2: *TWRI will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly.*

The following actions have been completed during this reporting period:

a. As of February 29, 2012, 118,703 or 44% of federal project funds had been expended.

44% Complete

Subtask 1.3: *TWRI will participate in meetings with TSSWCB and project partners as appropriate in order to efficiently and effectively achieve project goals, coordinate monitoring efforts and summarize activities and achievements made throughout the course of this project.*

The following actions have been completed during this reporting period:

a. TWRI and TSSWCB held a coordination meeting on February 15 to discuss project status.

b. A coordination meeting was held on March 21, 2012 to coordinate litter application in May 2012 at Riesel and coinciding monitoring activities (Appendix A).
c. A coordination meeting was held on April 9, 2012 between TWRI, AgriLife Extension, USDA-ARS, and TSSWCB to discuss and make plans for the field demonstration.

**80% Complete**

Subtask 1.4: *TWRI will work with the POSC, USDA-ARS, and SAML to ensure appropriate communication with the poultry industry.*

The following actions have been completed during this reporting period:
  a. POSC continues to communicate with Sanderson Farms (who fully supports the project activities).

**80% Complete**

Subtask 1.5: *TWRI will organize semi-annual TTVN meetings with project participants to discuss project activities, project schedule, lines of responsibility, communication needs, and other requirements.*

The following actions have been completed during this reporting period:
  a. Several project meetings were held with TSSWCB and project partners this quarter as discussed subtask 1.3 above.

**80% Complete**

**TASK 2: Quality Assurance**

Subtask 2.1: *TWRI will develop a QAPP for activities in Task 3 and 4 consistent with the most recent versions of EPA Requirements for Quality Assurance Project Plans (QA/R-5) and the TSSWCB Environmental Data Quality Management Plan.*

**100% Complete**

Subtask 2.2: *TWRI will submit revisions and necessary amendments to the QAPP as needed.*

The following actions have been completed during this reporting period:
  a. Minor revisions to the QAPP were made this quarter and submitted to TSSWCB for approval.

**80% Complete**

**TASK 3: Demonstration of IWC of Poultry Litter**

Subtask 3.1: *POSC will work with integrators (primarily Sanderson Farms) in Limestone and Falls Counties to identify a cooperator (poultry grower) for conducting the IWC demonstration. The cooperator demonstration site will provide the poultry house where IWC will be performed and the IWC and raw litter for land application.*
The following actions have been completed during this reporting period:

a. A cooperator has been identified for IWC demonstration in May 2012.

50% Complete

Subtask 3.2: IWC will be conducted by POSC at the cooperator site identified in Subtask 3.1 in years 1 and 2 to demonstrate and evaluate IWC utility prior to litter removal from poultry houses.

The following actions have been completed during this reporting period:

a. IWC will be conducted at the cooperator site in May 2012 before being delivered to Riesel sites for application.

50% Complete

Subtask 3.3: Raw and IWC poultry litter samples will be collected by POSC prior to land application to evaluate the effect of composting on levels of bacteria, nutrients, and volatiles in the litter. Bacteria levels (E. coli) in the litter will be analyzed by SAML. Nutrient levels (N-P-K) in the litter will be analyzed by SWFTL. Volatiles emitted from the litter prior to land application will be analyzed by W-TAMU.

The following actions have been completed during this reporting period:

a. Litter samples will be collected in May prior to application and analyzed by SAML, SWFTL, and W-TAMU. Application is planned for the week of May 14, 2012. The week of May 21, 2012 has been reserved as a backup should inclement weather not allow application the previous week.

50% Complete

Subtask 3.4: Raw and IWC poultry litter will be applied by POSC at 3 tons/ac to the USDA-ARS Riesel site. Annual soil tests will be performed by SWFTL and by USDA-ARS.

The following actions have been completed during this reporting period:

a. Litter will be applied in May 2012.

50% Complete

Subtask 3.5: POSC will assess the cost of implementing IWC on poultry operations for inclusion with educational materials as compared to conventional methods.

The following actions have been completed during this reporting period:

a. No activity to report this quarter.

0% Complete

TASK 4: Analysis of Environmental Effects of IWC

Subtask 4.1: Runoff samples will be collected from two pastures at the USDA-ARS Riesel site for about one year prior to litter application and for about two years following litter application to evaluate the impacts of using IWC poultry litter versus raw poultry litter. Runoff samples will be collected from all other field- and watershed-scale sites at Riesel to quantify nutrient and
bacteria from background sites and litter application sites. E. coli levels in water samples will be evaluated by SAML. Nutrient analysis (NO₃-N, NH₄-N, and PO₄-P) for water samples will be conducted by the USDA-ARS with funding from another project.

The following actions have been completed during this reporting period:


80% Complete

Subtask 4.2: Runoff samples will also be collected from four 0.25 acre field sites at the USDA-ARS Riesel site for about 1 year prior to litter application and for about 2 years following litter application to compare the impacts of using IWC and raw poultry litter on bacteria and nutrient runoff. Two of the field sites will receive raw litter and two will receive IWC litter. Rainfall amounts, runoff, and quantities of E. coli and nutrients will be evaluated. E. coli levels in water samples will be evaluated by SAML. Nutrient analysis (NO₃-N, NH₄-N, and PO₄-P) for water samples will be conducted by the USDA-ARS with funding from another project.

The following actions have been completed during this reporting period:


80% Complete

Subtask 4.3: POSC and W-TAMU will also evaluate other potential environmental benefits of using IWC poultry litter instead of raw litter. Through the use of field assessment of volatile levels at the litter application sites at Riesel by POSC and W-TAMU, the environmental impacts of using IWC poultry litter instead of raw litter will be demonstrated/evaluated.

The following actions have been completed during this reporting period:

a. Assessment of volatile levels at the litter application sites at Riesel by POSC and W-TAMU will be performed in May 2012 following the scheduled litter application.

50% Complete

TASK 5: Technology Transfer

Subtask 5.1: POSC, SAML, and USDA-ARS, with assistance from TWRI and project participants, will develop outreach materials (1 refereed journal article and 1 Extension fact sheet) summarizing the results of the demonstration and the analysis of the environmental impacts of IWC poultry litter. The Extension Fact Sheet will be submitted to the TSSWCB and poultry integrators for review prior to publication.

The following actions have been completed during this reporting period:

a. No activity to report this quarter.

25% Complete

Subtask 5.2: POSC will conduct 6-9 grower meetings throughout the poultry producing areas of the state to present results of the IWC demonstration/evaluation. POSC will work with poultry integrators to deliver 2-3 programs for growers for each integrator (Sanderson Farms, Tyson,
At least 1 field day will be held in conjunction with the grower meetings to view the IWC at the cooperator site and Riesel field sites. TWRI will assist POSC by developing press releases, meeting notification materials for distribution prior to the meetings, and post meeting summaries.

The following actions have been completed during this reporting period:

a. No activity to report this quarter. This activity will be initiated once sufficient data has been collected for presentation. It is anticipated that soon after the next litter application we can combine the assessment of volatile levels from the 2 applications and the effect of composting on levels of bacteria, nutrients, and volatiles in the litter to provide POSC sufficient info to initiating data presentation to growers.

5% Complete

Subtask 5.3: TWRI, with assistance from POSC, USDA-ARS, and SAML, will develop (Month 1-6), host and maintain (Months 6-36) a project website for dissemination of project materials.

The following actions have been completed during this reporting period:

a. The Environmental Effects of In-House Windrow Composting of Poultry Litter website went online in February 2010. It can be found at http://windrowlitter.tamu.edu/. Since the website went online, it has been viewed by a grand total of 352 unique visitors.

b. This quarter, the website was viewed by 48 unique visitors.

80% Complete

Subtask 5.4: POSC, with assistance from TSSWCB, TWRI and USDA-ARS, will work with USDA-NRCS to make necessary revisions to various practice standards (i.e., 629 Waste Treatment, 633 Waste Utilization, 317 Composting Facility) to include IWC.

The following actions have been completed during this reporting period:

a. No activity to report this quarter

100% Complete

Subtask 5.5: POSC will work with SAML, USDA-ARS, and TWRI to develop a final report summarizing the results of the project.

The following actions have been completed during this reporting period:

a. No activity to report this quarter.

0% Complete

III. Related Issues/Current Problems and Favorable or Unusual Developments

- Due to drought, a no cost extension will be needed to gather sufficient data to meet the objectives of the project.

Projected Work for Next Quarter

- Apply litter and conduct coinciding evaluations
- Continue monitoring runoff
- Submit request for a no cost extension through August 2013
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<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
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<td>13</td>
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<td>16</td>
<td>17</td>
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<td>19</td>
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<tr>
<td>Litter delivery to Riesel.</td>
<td>Apply Litter in morning</td>
<td>Panelists sample odor 09-1200</td>
<td>Panelists sample odor 09-1200</td>
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<tr>
<td>Soil and litter samples taken (TBD depending on litter delivery time)</td>
<td>09-11ish- collect demographic information, train panelists (16 adults)</td>
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<td>Afternoon- Scout sites for panel placement when Eddie arrives</td>
<td>Afternoon- volatile sampling w/ chambers and tubes, take soil sample</td>
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<td>20</td>
<td>21</td>
<td>Craig- litter acquisition &amp; delivery to Riesel, bottled water, ice chest, 3 nasal rangers, chambers</td>
<td>Eddie- 3 nasal rangers, tubes</td>
<td>If 4/1-5/1 soil samples reveal greater than background numbers, more samples will be taken</td>
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<tr>
<td>Panelists sample odor 09-1200</td>
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