Quarter no. 14 From 1-1-13 through 3-31-13.

I. Abstract

The region continues to suffer prolonged drought. Only one small runoff event occurred at one of the 0.25 ac field sites this quarter. Additional litter sampling and analysis was also performed to gain more data on *E. coli* concentrations in litter. Outreach continued through the website and presentation at the International Poultry Science Forum. Next quarter, project activities will include continued monitoring, continued development of the Extension fact sheet, and presentation at Grower Meeting(s).

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:

a. TWRI submitted the Quarter 14 progress report on April 12, 2013.

85% 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 the February 28, 2013 invoice, $224,161 (84%) of federal funds had been expended.

84% 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 met with TSSWCB on March 1, 2013 and routinely communicates with TSSWCB via phone and email.

85% 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 and other poultry integrators to ensure their awareness and support of the project activities.

85% 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. The next semi-annual project meeting will be held on April 19, 2013.

85% 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. The revised QAPP was approved on July 27, 2012. This approval is good through the remainder of the project unless additional revisions are needed.

100% 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. POSC worked with Sanderson Farms to secure cooperators (poultry growers) in Limestone County for conducting the IWC demonstration.

100% Complete

Subtask 3.2: *IWC will be conducted by POSC at the cooperator site identified in Subtask 3.1 in years 1 & 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 was conducted at the cooperator site September 24 – October 3, 2011 before being delivered to Riesel sites for application.

b. IWC was conducted at the cooperator site May 3-11, 2012 before being delivered to Riesel sites for application.

100% 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. Raw and IWC poultry litter samples were collected by POSC on October 3, 2011 and May 14, 2012, prior to land application, and analyzed by SAML, SWFTL, and W-TAMU for bacteria, nutrients, and volatiles to evaluate the effect of composting on their levels in the litter.

b. Since very little E. coli was found in the litter during the initial 2 trials, an additional litter sampling project has been initiated to further examine E. coli presence and distribution in broiler houses. Litter from 4 barns of 4 different farms has been sampled within 24 hours of bird catch-out. Preliminary data indicate that E. coli can be found in broiler litter, but the concentrations are lower than previously reported in the literature with significant spatial variability within houses. It appears that E. coli concentrations in litter are dependent on moisture content. This data may explain why little E. coli was found during the 2 trials, as the moisture content of the litter was quite low in the houses used for the trials.

100% 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 was applied on October 4, 2011 and May 14, 2012.

b. Soil samples were collected on October 3, 2011 and May 13, 2012 prior to litter application. All soil test analysis has been completed.

100% 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 (NO\textsubscript{3}-N, NH\textsubscript{4}-N, and PO\textsubscript{4}-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:

a. No runoff sampling events occurred this quarter.

85% 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 (NO\textsubscript{3}-N, NH\textsubscript{4}-N, and PO\textsubscript{4}-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:

a. One runoff sample was collected this quarter at P2 on March 10, 2013.

85% 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. Field assessment of volatile levels at litter application sites at Riesel were conducted on October 5, 7, and 10, 2011 and May 15, 16, and 18, 2012 following litter applications.

100% Complete

**TASK 5: Technology Transfer**

Subtask 5.1: *POSC, SAML, and USDA-ARS, with assistance from TWRI and project participants, will develop 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, Pilgrim’s Pride). At least 1 field day will be held in conjunction with the grower meetings to view the IWC at 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 field day is planned for July/August 2013 at the IWC at Riesel field sites.
- An oral presentation summarizing the results from the second litter application was presented on January 28, 2013 in Atlanta, GA at the International Poultry Science Forum. This provided results to poultry industry personnel nationwide. The presentation is posted on the project website (http://poultrylitter.tamu.edu/media/370175/winkler_ipsf_abstract_m33.pdf).
- POSC will present results of the IWC demonstration/evaluation to Sanderson Farms Waco Production broiler contract producers on April 10, 2013 (see attached flyer).

10% 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:
- 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 565 unique visitors.
- This quarter, the website was viewed by 60 unique visitors.

85% 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:
- Conservation Practice Job Sheet No. 629, In-House Pasteurization of Litter Waste Treatment was released November 2009.

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:
- No activity to report this quarter.

0% Complete

III. Projected Work for Next Quarter
- Continue monitoring runoff
- Continue development of fact sheet and presentation
Sanderson Farms would like to invite all Waco Production broiler contract producers to our annual grower meeting. Lunch will be served at 12:00 p.m. and following lunch we will have guest speakers from various companies. Our guest speakers will be giving away door prizes and will have booths set up to discuss products and to answer any questions that you may have. The guest speakers are listed below as well as the itinerary for our grower meeting. We hope to see all of you at the 2013 grower meeting.

Place: Pridgeon Community Center, Franklin, TX

Lunch: Catered by Buppy's BBQ

Date: April 10, 2013

Time: 11:30 a.m.

* Aquatech- Stacey Cunningham and Ronnie Melvin, (water quality importance)

* Texas A&M- Craig Coufal, Lab results and statistics on Texas windrowing

* Aviagen- Mark Hogan