

**Pathogen Analysis of NYSDOT Road-killed Deer
Carcass Compost Facilities**

Quarterly Progress Report #2

01/01/06 – 03/31/06

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Transportation Infrastructure Research Consortium (TIRC)

CWMI Quarterly Progress Report: 01/01/06 – 03/31/06

Pathogen Analysis of NYSDOT Road-killed Deer Carcass Compost Facilities

Task 1: Select Pathogens for Study – task 1 is complete

Subtask 1.1

- This subtask has been completed (see Quarterly report #1) having selected the following pathogens for study:
 - ❖ *Escherichia coli*/Fecal coliforms
 - ❖ Fecal Streptococcus/Enterococci
 - ❖ *Salmonella* spp.
 - ❖ *Mycobacterium avian paratuberculosis* (MAP)

Subtask 1.2

- Literature on prevalence of pathogens in wildlife and on the conditions associated with their inactivation was located and reviewed.
- All literature reviewed has been put into an electronic file (Endnote) and a summary of the findings has been done.
- Reports titled “Summary of Rationale of Bacteria Studied” and “Prevalence of Pathogens in Roadkill Summary” are complete.

Task 2: Establish Compost Piles – task 2 is complete

Subtask 2.1

- Location of sites for establishing 3 pilot demonstration piles is complete (see Quarterly Report #1).

Subtask 2.2

- Pilot piles were built in October in Watertown, Cortland and Highland, NY.
- Three replicate research piles were built in November at the Cornell University compost site
- This subtask is complete (see Quarterly Report #1).

Task 3: Investigate Pathogen Concentrations and Compost Characteristics

Subtask 3.1 – subtask 3.1 is complete

- Woods End Research Laboratory (WERL) in Maine was selected to perform the pathogen analyses.
- The Johns laboratory at the Cornell College of Veterinary Medicine was selected to analyze the manure for *Mycobacterium avian paratuberculosis*.

Subtask 3.2

- Replicate samples of compost were sampled from the 3 pilot piles for month 3 testing, and sent to WERL for compost composition, particle size and pathogen analysis:
 - ❖ Watertown was sampled on 1/16/06, Cortland and Highland were sampled on 1/17/06.

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- ❖ Holes were dug in the compost piles at 3 sites around the perimeter of the pile. Sample # 1 was taken from all 3 holes at approximately 12” into the pile, sample # 2 at 12 – 18” in, and sample # 3 at 18 – 24”.
- ❖ Pathogens were analyzed on all 3 samples while compost composition and particle size were analyzed on one composite made at WERL from the 3 samples being mixed together.
- ❖ Temperature data from the data loggers at all 3 sites were downloaded.
- ❖ There was a problem with the data logger at the Cortland site. A replacement logger was obtained from Hobo, and the original logger was sent back for repair. When the original came back, it was found that probe 1 on the replacement wasn’t working. Then after checking the original, probe 2 was not working. The temperature probe was replaced and it is working properly again.
- Month 3 sampling of the 3 research piles was done on 1/30/06:
 - ❖ Bags of MAP manure were taken for analysis at the John’s laboratory.
 - ❖ Replicate samples of compost were sampled for month 3 testing, and sent to WERL for compost composition, particle size and pathogen analysis in the same manner as at the pilot piles.
- Based on discussions with WERL concerning the pathogen analysis in the intestinal content samples taken to date, it was decided to wait to sample the intestinal content bags until week 17, rather than at week 12 as originally scheduled. Week 17 intestinal content bags were sampled at the 3 research piles on 3/13/06. The data logger for pile 1 was not working and was replaced on 3/16/06.

Subtask 3.3

- All data collected thus far (temperature, composition and pathogen data) has been entered into Microsoft excel to be analyzed using statistical measures when all data has been collected.

Task 4: Outreach and Guidance to Facilitate Implementation of Composting Road Kill Deer

Subtask 4.1

- Video footage of piles in the winter and road-killed deer has been taken by Insights productions: Ann Michel and Phil Wilde.
- Tentative filming/interviews for video has been set for the third week in May in Washington County.
- Information about the project has been posted on the Cornell Waste Management Institute website at <http://cwmi.css.cornell.edu/tirc/tirc.htm>
 - ❖ Project description
 - ❖ Summary of the January 30, 2006 meeting of the technical working group
 - ❖ Summary of rationale for bacteria studied
 - ❖ Quarterly progress report #1

Pathogen Analysis of NYSDOT Road-killed Deer Carcass Compost Facilities

- ❖ Protocol for obtaining deer intestinal tract for DOT deer carcass research piles
- ❖ Field test of sentinel bags
- ❖ Pile building at pilot sites: Watertown, Cortland and Highland
- ❖ Pile building at Cornell's research site
- ❖ Week 3 bag pulling for pathogen testing at the research site
- ❖ Photos of the project
- ❖ Additional items from this quarterly report will be posted to the site soon

Subtask 4.2

- DOT personnel and other audiences will be invited to be present during filming in Washington County.

Task 5: Progress and Final Reports

Subtask 5.1

- Meeting held in Ithaca on January 30, 2006
 - ❖ In attendance:
 - Cornell - Ellen Harrison, Jean Bonhotal, Mary Schwarz
 - Veterinary College - Beth Buckles, Paul Jeannette
 - DEC - Alan Woodard, Terry Laibach
 - ILR workplace health and safety - Nellie Brown
 - NYS DOT – Tim Baker, John Bronk, Peter Howard, Elizabeth Kolb, Ray Oram, Sandra Rapp
 - ❖ Purpose: Presentation and discussion of project to date
 - ❖ Demonstration of compost sampling and MAP bag pulling at Cornell compost site.