

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

**Quarterly Progress Report #6**

**01/01/07 – 03/31/07**

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

### **Transportation Infrastructure Research Consortium (TIRC)**

**CWMI Quarterly Progress Report: 04/01/06 – 06/30/06**

## **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

- This subtask has been completed.
- Reports titled “Summary of Rationale of Bacteria Studied” and “Prevalence of Pathogens in Roadkill Summary” are complete (see Quarterly report numbers 1 and 2).

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 indicator bacteria and bacterial pathogen analyses.
- The Johnes laboratory at the Cornell College of Veterinary Medicine was selected to analyze the manure for *Mycobacterium avian paratuberculosis*.

Subtask 3.2 – subtask 3.2 is complete

- Research and Pilot piles were sampled and analyzed for pathogens and compost parameters at the specified intervals of 0, 3, 6, 9 and 12 months. Temperature of each pile was monitored throughout with data loggers.
- The inoculated “deer goo” in the research piles were sampled and analyzed for pathogens at the specified intervals of 0, 3, 6, 9, 17 and 36 weeks.
- The inoculated Johnes manure in the research piles was sampled and analyzed for *Mycobacterium avian paratuberculosis* at the specified intervals of 0, 3, 6, 9, 12 and 36 weeks.

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

### 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.
- Compost pathogen and deer goo pathogen data have been analyzed statistically using ANOVA in the S-Plus operating system.
- Temperature data has been summarized to average daily temperatures and number of days above 44 and 55°C have been calculated for each pile.
- Statistical analysis on all data continues

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

#### Subtask 4.1

- The revised draft of Guidance to Address Worker Health and Safety for Biological Hazards Associated with Composting Road-Killed Deer in New York was written by Nellie Brown, Director, Workplace Health and Safety Program, Cornell University. A meeting will take place in April to discuss this draft.
- A first draft of the DVD by Insights productions has been completed and will be discussed at the April meeting.
- Information about the project has been posted on the Cornell Waste Management Institute website at <http://cwmi.css.cornell.edu/tirc/tirc.htm>
- A first draft of a CWMI fact sheet on composting roadkill has been completed and will be discussed at the April meeting.

#### Subtask 4.2

- Field demonstrations are being planned for 5 locations to include Long Island, Highland, the Albany area, Syracuse and somewhere in western NY (Buffalo area).

#### Subtask 4.3

- Jean Bonhotal spoke at the National Carcass Disposal Symposium 2006 on December 5 in Beltsville, Maryland about the project. Her session was entitled “Pathogen Assessment of Passively Aerated Composting of Road Kill.”
- Nellie Brown also spoke at the same conference on the same day, presenting “Hazard Reduction for Workers Collecting and Composting Road-Killed Carcasses.
- A poster has been created that was displayed at the above symposium.
- Jean Bonhotal and Will Brinton spoke at the US Composting Council Conference on January 21 in Orlando, Florida about the project. Will prepared some new charts showing changes in organic matter and nitrogen content, and the relationship to C:N and particle size, for all the piles during the composting. Elisabeth Kolb attended the conference.

### Task 5: Progress and Final Reports

#### Subtask 5.1

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

- Two of the three required meetings have been held (see Quarterly report numbers 1 and 2).
- A third meeting has been scheduled for April 16<sup>th</sup> to discuss:
  - ❖ Guidance to Address Worker Health and Safety for Biological Hazards Associated with Composting Road-Killed Deer in New York draft written by Nellie Brown.
  - ❖ Outreach materials and plans: Draft fact sheet, DVD, demonstrations
  - ❖ Compost End Use
  - ❖ Final Report

### Subtask 5.3

- 5 quarterly reports have been submitted – this is the 6<sup>th</sup>.