

FY 2017 Managing Wastes PROGRAM WORK TEAM Annual Report  
**Managing Wastes: Composting and Land Application**

\*Jean Bonhotal, Director (jb29@cornell.edu)  
Cornell Waste Management Institute  
Soil and Crop Sciences Section  
School of Integrative Plant Science  
817 Bradfield Hall  
Ithaca, NY 14853

Joan Petzen,  
Agriculture Department Program Leader  
(jsp10@cornell.edu)  
Cornell Cooperative Extension of Wyoming County  
Farm Business Management Specialist  
North West New York, Dairy, Livestock and Field  
Crops Team  
401 N Main St  
Warsaw, NY 14569

**Please identify your PWT's greatest accomplishments over the past year.**

The Managing Wastes PWT is represented by a diverse group of interested stakeholders, including livestock farmers, compost producers, community composters and homeowners, school composters, government agencies, other universities and colleges, Soil and Water Conservation Service, NGOs, private consultants, waste management companies, Cornell Cooperative Extension educators and Cornell faculty.

The Managing Wastes PWT convenes to identify needs in order to continue to address waste related issues. Effectively managing and reducing waste can turn unwanted waste products into resources while avoiding disposal costs and reducing demand for landfill space. There is demand for research and information on organic residual management. Our stakeholders have interest taking unusual organic feedstocks that may cause environmental problems, and convert them into valuable products for use in agriculture, horticulture and for energy production and erosion control, as well as homes, schools and communities.

In early 2017, the Managing Wastes PWT convened a forum to check progress and continue to set the course for a Hatch funded project, Improving Turf and Soil Health, Reducing Energy Use and Assessing Tick Populations by Mulching Leaves in Place. Thirty horticulture, turf and IPM professionals met to discuss turf, ticks and soil principles and properties, including the concepts and benefits of best management practices that improve soil health. This project was conducted to see if mulching leaves in place provided benefits to turf and soil without adding excess nutrients to the soil, smothering the underlying turf or providing a suitable habitat for insect pests to proliferate. Soil testing showed an advantage in long-term mulch mowing for available water capacity, soil proteins and soil respiration. There were no treatment differences in the chemical properties of the soil except zinc, but none of the treatment groups showed a concentration of zinc below the critical level. Overall quality score for all treatments was optimal, indicating that mulch mowing did not have any detrimental effects on the

health of the soil. There were no differences in the concentration of macro or micronutrients in the leaf and duff material between treatments or in the concentration of those nutrients being added or removed from the soil. In terms of turf quality, lawns that had been mulch mowed, regardless of number of years showed significantly higher pest tolerance, significantly better color and color retention and significantly greater percent living ground cover than those where leaves had been removed. Drought stress tolerance over time increased on sites where mulch mowing had been practice for greater than four years, but remained the same for the other two treatments. Mulch mowing did not improve the habitat for ticks. Mean number of ticks collected was significantly greater on lawns and around the perimeter than on sites where mulch mowing was practiced. As to the cost to communities for leaf pick-up and transport, the amount of fuel used to remove leaves was 4 and 33 times as much as mulch mowing for the two treatment groups. Based on the results of this three-year study, mulch mowing of leaves provides some soil health benefits, many turf quality benefits, does not increase the habitat for pests and uses less fuel than community pick-up. This study should help communities, homeowners and landscapers to make better leaf management decisions.

Compost use has been a large target throughout New York State. There are intensive efforts to increase the use of compost in horticulture and agriculture, erosion control and with turf and native plant establishment. Compost blankets and socks are being installed on roadsides, ditches/storm drains, in state and county parks, for stream bank stabilization and more. Posters were designed featuring some of the projects that PWT groups are working on with Soil and Water Conservation Service, New York State Parks, farmers, composters, Cornell Plantations, Dilmun Hill Organic Farm, Cornell Local Roads Program, NYS DOT and NYS DEC. Posters can be viewed and printed to extend learning at <https://ecommons.cornell.edu/handle/1813/45901>

Targeted research and programming, as well as assistance in policy development on many waste topics including recycling, composting, digestion, waste reduction and agricultural waste management by CWMI all come from these type of events. The Managing Wastes PWT allows CWMI the opportunity to fine-tune those targets. CWMI continues to work with NYSDEC and many others to help implement organic waste reduction and management in NYS. A guide for student leaders and teachers was developed by CWMI in collaboration with USEPA. This downloadable 16 page illustrated fact sheet is available at School Composting – Let's Get Growing <http://hdl.handle.net/1813/52083>

CWMI's Compost Facility Map (<http://compost.css.cornell.edu/maps.html>) helps facilitate the movement of organic feedstock to compost facilities; 10 new facilities are managing more organics and 8 more schools (including colleges and universities) are managing organics either on-site or diverting to a large scale or municipal facility. Businesses that transport pre and post-consumer waste from small restaurants to large compost facilities are cropping up in NY as well and are being listed on the map.

Our continued interactions with community stakeholders through gardening events and discussion forums, urban farming workshops and responding to information requests by email and phone have clearly indicated that our "Healthy Soils, Healthy Communities" and soil quality resources (<http://cwmi.css.cornell.edu/soilquality.htm>) are in demand and being used frequently. Work continues to help gardeners, farmers, and others make informed decisions about contamination in soils and use best management practices for healthy and safe gardening.

CWMI collaborates with other Cornell departments to play a major role, particularly regarding characterization and use of wastes in agriculture and communities. CWMI delivers research-based knowledge around the world, and provides updates via a 5,000 plus-person e-mail list. CWMI had a presence in India and Haiti, teaching compost production and use to work toward improving soils to improve food security. “Compost: Spread it Around” is the new mantra. All resource materials and videos are accessible through eCommons, Cornell’s digital repository:  
<https://ecommons.cornell.edu/handle/1813/2146>.

The CWMI website, Blog and eCommons received over 700,000 hits. Through conferences, workshops and trainings, CWMI reached 1,400 people with a total of 4,670 contact hours. CWMI’s reach continues to expand as we worked with Extension educators from 42 counties and across the nation as well.