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Resources

Written and audio-visual materials produced by CWMI are available to help people make informed decisions about managing wastes.



[AV \(videos\) Materials](#)

[Health and Safety](#)

[Composting](#)

[Sewage Sludge](#)

[Updates and Program Work Team \(PWT\)](#)

[Soil Quality and Testing](#)



[Dairy Manure Bedding](#)

[Youth and Teacher](#)

[Fact Sheets](#)

[Other: ag plastics, packaging, webinars](#)

[Final Reports](#)



AV (videos) materials (the videos listed below require QuickTime to view)

- **Compost...because a rind is a terrible thing to waste!** 65p [manual](#) with accompanying [30-minute video](#) plus a [7-minute video](#) used to promote food scrap composting in large institutions. 1996.
- **COMPOST: Truth or Consequences.** [15-minute video](#) teaches the science behind the solutions using a quiz show format to present common questions. An 11p [User's Guide](#) is also available. 1998.
- **Composting Road Kill.** [8-minute DVD](#) shows how roadkill deer are successfully managed through composting. 2007.
- **Do You Know Where Your Garbage Is?** 12-minute video for youth which presents options for what we can do with the garbage that we can't reduce, reuse, or compost. Animated characters and documentary footage explores the controversial issues of composting, incinerating, and landfilling and how these can be part of a community's waste management plan. 1992.
- **Farm-Based Composting: Manure and More.** 38-minute video highlighting 14 farm operations and six different composting technologies from low to high tech. Purchase from [NRAES](#) or [free download](#). 2001.
- **Farm Waste Management Makes Sense.** 9-minute videoprovides an overview of serious economic questions surrounding agricultural waste disposal and offers suggestions for effective waste management. Purchase from [NRAES](#) or [free download](#). 1996.
- **It's Gotten Rotten.** Links to information on how to purchase (or [free download](#)) this 20-minute video on the biology of invertebrates in compost. [Teacher's guide included](#). 1997.
- **Life After The Curb.** 20-minute video for youth showing how materials are reprocessed into new products. It shows separation and recycling processes and end products for plastic, steel, aluminum, glass, and paper. 1990.
- **Natural Rendering: Composting Livestock Mortality and Butcher Waste.** 20-minute video describing mortality and butcher residual composting at 8 facilities. 2002. Download in [English](#) or [Spanish](#).
- **Natural Rendering: Composting Poultry Mortality.** [6-minute video](#) shows how to compost poultry carcasses and the donning of personal protective equipment. 2008.
- **Recycling Yard Waste: A Tour of Community Programs.** [35-minute video](#) to help local officials and citizens make informed choices about managing municipal yard waste using four scenarios of various community composting and chipping programs as representative examples to help communities identify the options available to them. 1991.
- **Recycling Within Reach.** [15-minute video](#) discusses the handling of recyclables in the home and the concept of "pre-cycling". Statistics on our trash and what you can do about it. Composting in the home/community, recycling, and "pre-cycling" by carefully selecting the products you buy are discussed. 1991.
- **Turning Over an Old Leaf: Municipal Yard Waste Composting.** 7-minute video to help local officials and citizens understand how recycling yard waste through composting and chipping helps the environment and saves money. 1992.
- **Vermicompost - A Living Soil Amendment.** [9-minute video](#) on how vermicompost is made and used as a waste management technology. 2010.
- **Waste Prevention Tools at Work.** [13-minute video](#) to help solid waste officials, educators, recycling professionals, and businesses reduce the amount of solid waste generated by businesses, with a particular focus on retail, hospitality, and small office sectors. 1994.

Composting

- General
 - **Composting to Reduce the Waste Stream: A Guide to Small Scale Food and Yard**

- **Waste Composting.** 44p book. NRAES publication. [Purchase](#) or free [download](#). 1993.
- **Frequently Asked Questions.** 3p of Q & A for small scale composting, 1995.
- **Glossary of Composting Terms.** 2p document. 1996.
- **Master Composter Program Implementation Guide & Master Composter Resource Manual.** 157p manual. 1998.
- **Small to Medium Scale Composting of Food Wastes in New York City.** 65p report evaluating several technologies for on-site composting. 1999
- **Yard Waste Management - A Planning Guide for NYS.** 160p document. 1990.
- **Home Composting (Small Scale/Backyard)**
 - **COMPOST: Truth or Consequences.** Ordering information and video clips for this amusing and informative 15-minute video on home composting "how tos". ([Purchase](#) or free [download](#).) 11p [User's Guide](#) is also available. 1998.
 - **Composting at Home - The Green and Brown Alternative.** 12p fact sheet shows how to separate and collect organic residuals, and how to choose a compost unit. A 59-slide show presentation (PDF) is also available. 2011.
 - **Composting Health Considerations.** 1p document. 1996.
 - **Composting to Reduce the Waste Stream - A Guide to Small Scale Food and Yard Waste Composting (NRAES-43).** 45p illustrated document produced by [NRAES](#). 1991.
 - **Health & Safety Guidance for Small Scale Composting.** 2p illustrated fact sheet. 2004.
 - **Home Composting.** 4p "how to" educational brochure. 2005.
 - **Home Composting Slide Show.** A 50-slide show presentation (PDF format updated 2011). 1989.
 - **Home Garden Use of Milorganite®.** 2p fact sheet addressing questions about use of this dried sewage sludge product in the home garden. 2006.
 - **Hygienic Implications of Small Scale Composting in New York State.** 71p report on home compost quality. 2004.
 - **Frequently Asked Questions About Worm Composting.** 1p Q & A, 1995.
 - **Master Composter Program Implementation Guide & Master Composter Resource Manual.** 157p guide for establishing a Master Composter program. 1998.
 - **Preventing Animal Nuisances in Small Scale Composting.** 2p illustrated fact sheet. 2005.
 - **Six Easy Steps to Setting Up a Worm Bin.** 1p document. 1995.
 - **Small Scale or Backyard Composting.** Web site with basic information and description of and links to other resources. 2004 updated 2006.
 - **Troubleshooting Worm Bins.** 2p document. 1995.
 - **Worm Composting Basics.** 2p document. 1995.
- Large Scale Composting
 - Calculation Tools
 - **Calculate C/N Ratio for Three Materials.** 1996.
 - **Calculate Percent Moisture of Compost.** 1996.
 - **Calculate Required Weight of Third Ingredient for Ideal Moisture Content.** 1996.
 - **Calculating the Oxygen Diffusion Coefficient in Air.** 1996.
 - **Calculating the Oxygen Diffusion Coefficient in Water.** 1996.
 - **C/N Ratio.** 1996.
 - **Co-Composter Model.** A user-friendly spreadsheet model and instructions for planning composting systems. 2004.
 - **Compost Mixture Calculation Spreadsheets.** 1996.
 - **Determining Volatile Solids and Moisture Losses.** 1996.
 - **Estimating Carbon Content.** 1996.
 - **Moisture Content.** 1996.
 - **Solving the Moisture and Carbon-Nitrogen Equations Simultaneously.** 1996.
 - **Techniques for Detailed Study of Compost Microorganisms.** How to calculate dry weight, 1996.
 - **The Space It Takes - Footprint Calculator for Composting Butcher Waste.** 8pg document. 2010.
 - Siting and Operation
 - **Aerobic Composting Affects Manure's Nutrient Content.** Article published in Northeast DairyBusiness 8(3):18, 2006
 - **Co-Composter Model.** A user-friendly spreadsheet model and instructions for planning composting systems. 2004.
 - **Compost...because a rind is a terrible thing to waste!** 65p [manual](#) with accompanying [30-minute video](#) plus a [7-minute video](#) used to promote food scrap composting in businesses and large institutions. 1996.
 - **Compost Bulking Materials.** Compost Fact Sheet Series #5. 4p illustrated fact sheet, 2005.
 - **Compost Equipment.** Compost Fact Sheet Series #7. 6p illustrated fact sheet. 2006.
 - **Compost Pads.** Compost Fact Sheet Series #6. 6p illustrated fact sheet. 2005.
 - **Compost Turner Suited To You.** Article published in Northeast DairyBusiness 46(5):10-12, 2005.
 - **Composting at Kreher's Poultry Farm: Case Study.** 4p document, 2006.
 - **Composting Liquids.** Compost Fact Sheet Series #8. 4p illustrated fact sheet, 2007.
 - **Cornell Farm Services Compost Site.** 7p document with information about the Cornell Compost Site, 2009.
 - **Excessive Pile Size.** 1p document, 1996.
 - **Factors Leading to Anaerobic Conditions.** 1p document, 1996.
 - **Farm-Based Composting: Manure & More.** 38-minute video highlighting 15 farm operations and 6 different composting technologies. [Purchase](#) from NRAES or free [download](#). 2001.

- **Cornell Waste Management Institute Food Scrap Composting Project.** Case studies. 1998.
 - Food Scrap Composting at Camp Loyaltown - [case study](#). 1997
 - Food Scrap Composting at Cayuga Nature Center - [case study](#). 1997.
 - Food Scrap Composting at Mohawk Valley Community College - [case study](#). 1996.
 - Food Scrap Composting at Cornell University Dining Services - [case study](#). 1996.
 - Food Scrap Composting at Keene Central School - [case study](#). 1995.
- **Glossary of Composting Terms.** 2p document. 1995.
- **In-Vessel Composting Options for Medium-Scale Food Waste Generators.** Article published in BioCycle 52(3):49-53. 2011.
- **Monitoring Compost pH.** 2p document. 1995.
- **Monitoring Compost Moisture.** 1p document. 1995.
- **Monitoring Compost Temperature.** 1p document. 1995.
- **Municipal Yard Waste Composting: Operator's Fact Sheet -Building Windrows.** 1p document. 1995.
- **Municipal Yard Waste Composting: Operator's Fact Sheet - Chipping Woody Wastes.** 1p document. 1995.
- **Municipal Yard Waste Composting: Operator's Fact Sheet - Compost Process.** 1p document. 1995.
- **Municipal Yard Waste Composting: Operator's Fact Sheet - Composting Ingredients.** 1p document. 1995.
- **Municipal Yard Waste Composting: Operator's Fact Sheet - Oxygen.** 1p document. 1995.
- **Municipal Yard Waste Composting: Operator's Fact Sheet - Temperature.** 1p document. 1995.
- **Municipal Yard Waste Composting: Operator's Fact Sheet - Troubleshooting.** 1p document. 1995.
- **Municipal Yard Waste Composting: Operator's Fact Sheet - Turning Windrows.** 1p document. 1995.
- **Municipal Yard Waste Composting: Operator's Fact Sheet - Water.** 1p document. 1995.
- **Odor Management.** 1p document. 1996.
- **Odor Treatment - Biofiltration.** 1p document. 1997.
- **On-Farm Composting Handbook.** Purchase this 186p NRAES book on how to produce and market compost. View the [Table of Contents](#) and selected pages of the handbook. 1992.
- **Poultry Waste Composting at ACE Farm: Case Study.** 4p illustrated fact sheet. 2006.
- **Poultry Waste Composting At Brey Farm: Case Study.** 4p illustrated fact sheet. 2006.
- **Turning Over An Old Leaf: Municipal Yard Waste Composting. The 20% Solution.** Download this 7-minute video, and overview of municipal operations. 1992.
- **Water Quality Protection.** 4p document. 1996.
- **Will Composting Pay on Your Dairy?** Article published in Northeast DairyBusiness 3(12):39,41. 2001.
- **Yard Waste Composting.** 4p illustrated fact sheet. 1990.

Use, Quality and Marketing

- **Compost Facility Maps and Database.** Maps and database of NYS compost facilities including home compost demo sites that can be searched by location and compost feedstocks, updated 2009. Click [here](#) to add or update your facility.
- **Compost Use Guidelines and Specifications.** Information on specifications for compost quality for different uses from several organizations, 2003.
- **Compost Markets: Are They There?** Article published in Northeast DairyBusiness, 4(40):40, 2002.
- **Compost: What Is It Worth?** Summary and Powerpoint presentations from meeting, 2006.
- **Highly Compacted Soils Improved by Compost Use.** 2p article published in BioCycle, 2007.
- **Improving and Maintaining Compost Quality.** Compost Fact Sheet Series #3. 6p illustrated fact sheet, 2005.
- **Linking Manure Best Management Practices to Improved Compost Production - Collaborative Composting in NYS.** 15p draft final report by WASTE NOT Resource Solutions. 2006.
- **Marketing Composts and Meeting Consumer Needs.** Compost Fact Sheet Series #1. 6p illustrated fact sheet, 2004.
- **Quality of New York State Agricultural Composts.** Report and data on 25 NYS manure-based composts and on compost label and guideline options, 2003.
- **Regulation and Certification of Composts.** Compost Fact Sheet Series #2. 4p illustrated fact sheet, 2004.
- **Revised New York State Fertilizer Regulations Pertaining to Compost.** Sections of NYS Dept. of Agriculture and Markets rules, 2006.
- **Testing Composts.** Compost Fact Sheet Series #4. 6p illustrated fact sheet, 2005.
- **Using Manure-Based Composts.** Report, articles and an illustrated fact sheet on use of composts in turf maintenance, vineyards and in remediation of compacted landscape soils, 2007.
- **Using Manure-Based Composts in Turf Management.** 4p fact sheet summarizing the results of this study, 2007

- **A How-To On Livestock Composting.** Article published in Northeast DairyBusiness, 10(11):18-19, 2008.
- **Are Your Deadstock Piles and Disposal Costs Causing Your Farm Nightmares?** Article published in Country Folks, Section B:21:23, 2009.
- **Composting Road Kill.** 12p illustrated fact sheet, 8-minute DVD and poster, 2007.
- **Composting Road Killed Deer in New York.** Article published in BioCycle 45(5):25-26, 2004.
- **Effectiveness of Composting Road Killed Deer in New York State.** Article published in Compost Science & Utilization, 18(4):232-241. 2010.
- **Emergency Planning for Avian Influenza in New York State.** Links to fact sheet, video and poster. 2007.
- **Emergency Response Planning for Disposal of Avian Influenza Affected Birds in NYS.** Proceedings from the 3rd International Symposium: Management of Animal Carcasses, Tissue and Related Byproducts (full proceedings). 6p. 2009.
- **Environmental Effects of Mortality Disposal.** Proceedings from the 3rd International Symposium: Management of Animal Carcasses, Tissue and Related Byproducts (full proceedings). 10p. 2009.
- **Evaluating Pathogen Destruction in Road Kill Composting.** Article published in BioCycle, 47(11):49-51, 2006.
- **Natural Rendering: A Natural Solution for Mortality and Butcher Waste.** Article published in Small Farm Quarterly, Fall pg 17, 2003.
- **Natural Rendering: Composting Livestock Mortality & Butcher Waste.** Links to:
 - 12p illustrated "how to" fact sheet, 2002.
 - 20-minute video demonstrating methods at 8 facilities. Download in [English](#) or [Spanish](#). 2002.
 - 3 illustrated posters available for download and printing in English and Spanish:
 - Key Points of Static Pile Butcher Residual Composting. (English [PowerPoint](#) or [PDF](#) and Spanish [PowerPoint](#) or [PDF](#)), 2002.
 - Key Points of Static Pile Carcass Composting. (English [PowerPoint](#) or [PDF](#) and Spanish [PowerPoint](#) or [PDF](#)), 2002.
 - Potential Environmental and Biosecurity Risk of Dead Animal Disposal. (English [PowerPoint](#) or [PDF](#) and Spanish [PowerPoint](#) or [PDF](#)), 2002.
- **Pathogen Analysis of New York State Department of Transportation Road Killed Deer Carcass Compost Facilities.** Links to reports, 12-page illustrated fact sheet, 8-minute DVD, and poster on static pile composting to manage road killed deer and other animals. 2007-8.
- **US Butcher Waste and Mortality Disposal Laws.** A [searchable map](#) of rules, regulations and guidance of US disposal laws. 2009.
- **On-Site Composting of Meat By-Products.** 15p [final report](#) of a project exploring the economic viability and technical obstacles to on-site composting of meat by-products. 2001.
- **The Space It Takes - Footprint Calculator for Composting Butcher Waste.** 8pg document. 2010.

- **Science and Engineering**

- **Ammonia Odors.** 2p illustrated document. 1996.
- **Bioavailability of Carbon and Nitrogen.** 1p document. 1995.
- **Capillary Theory and Matric Potential.** 2p document. 1996.
- **Compost Chemistry.** 2p document. 1995.
- **Compost Microorganisms.** 3p document, 1995.
- **Compost Physics.** 3p document, 1995.
- **Effect of Lignin on Biodegradability.** 4p document, 1996.
- **Effect of Particle Size on Bioavailability.** 2p document, 1996
- **Estimating Carbon Content.** 1p document, 1996.
- **Excess Moisture.** 3p document, 1996.
- **Excessive Pile Size.** 1p document, 1995.
- **Factors Leading to Anaerobic Conditions.** 1p document, 1996.
- **Getting the Right Mix – Calculations for Thermophilic Composting.** 1p document, 1996.
- **Inadequate Porosity.** 2p document, 1996.
- **Invertebrates of the Compost Pile.** 3p illustrated document, 1996.
- **Lignin and Other Constituents of Selected Organic Materials.** 1p chart, 1996.
- **Odor Management.** 2p document, 1996.
- **Odor Treatment - Biofiltration.** 2p illustrated document, 1996.
- **Oxygen Diffusion.** 2p illustrated document, 1996.
- **Oxygen Transport.** 1p document, 1996.
- **Testing Composts.** Compost Fact Sheet Series #4. 6p fact sheet, 2004.
- **Troubleshooting Compost Problems.** 1p chart, 1996.
- **Use of Fertilizer Nitrogen to Balance C/N Ratios.** 1p document, 1996.
- **Water Quality Protection.** 5p document, 1996.

CWMI updates and Program Work Team (PWT) Managing Wastes

Dairy Manure Bedding

- **Using Manure Solids for Dairy Barn Bedding,** 2006. Links to:
 - **Are Solids A Solid Bedding?** Article published in Hoard's Dairyman 154(14):518. 2009.
 - **Dairy Manure Solids Cut Bedding Costs.** Article published in Northeast DairyBusiness 10(4):24-25. 2008.
 - **Frequency of Re-Bedding With Dairy Manure Solids.** [Project results](#). 59p. 2008.
 - **Health Impacts and Economics of Using Dried Manure Solids in the Northeast.** [Proceedings](#) from the Ninth Annual Fall Dairy Conference. 2008.
 - **How Frequently Should Stalls Be Refreshed With New Bedding.** Article published in Progressive Dairyman, 1:57-58. 2011.
 - **Literature Review.** 28p. 2006.
 - **Project Description.** 3p. 2006
 - **Project Summary.** 2p. 2006.

- [Project Summary Phase 2: Frequency of Bedding Changes](#). 2p. 2007.
- [Save Money on Bedding](#). Article published in Eastern DairyBusiness 1(4):21. 2009.
- [Use of Dried Manure Solids as Bedding For Dairy Cows](#). 10p [document](#) resulting from research conducted on farms using DMS bedding to determine the feasibility of using manure solids as dairy cow bedding. 2010.
- [Using Manure Solids as Bedding](#). [Final report](#), 128p. 2008.

Fact sheets (click [here](#) for a separate listing of our *Composting* fact sheets)

- **Compost Fact Sheet Series 1-8**
 - [1. Marketing Composts and Meeting Consumer Needs](#). 6p. 2004.
 - [2. Regulation and Certification of Composts](#). 4p. 2004.
 - [3. Improving and Maintaining Compost Quality](#). 6p. 2004.
 - [4. Testing Composts](#). 6p. 2005.
 - [5. Compost Bulking Materials](#). 4p. 2004.
 - [6. Compost Pads](#). 6p. 2005.
 - [7. Compost Equipment](#). 6p. 2006.
 - [8. Composting Liquids](#). 4p. 2007.
- [Composting at Home - The Green and Brown Alternative](#). 12p fact sheet shows how to separate and collect organic residuals, and how to choose a compost unit. 2011.
- [Health & Safety Guidance for Composting in the School Setting](#). 2p. 2005.
- [Health & Safety Guidance for Small Scale Composting](#). 2p. 2004.
- [Home Composting](#). 4p. 2005.
- [Home Use of Milorganite®](#). 2p. 2006.
- [Municipal Solid Waste Composting Fact Sheet Series #1-7](#).
- [Municipal Yard Waste Composting - Operator's Fact Sheets Series #1-10](#). 1992.
- **Natural Rendering Fact Sheets:**
 - [Composting Livestock Mortality and Butcher Waste](#). 12p. 2002.
 - [Composting Poultry Mortality](#). 12p. 2008
 - [Composting Road Kill](#). 12p. 2007
- [Preventing Animal Nuisances in Small Scale Composting](#). 2p. 2005.
- **Soil Health**
 - [Guide to Soil Testing and Interpreting Results](#). 6p. 2009.
 - [Soil Contaminants and Best Practices for Healthy Gardens](#). 4p, updated October 2009.
 - [Sources and Impacts of Contaminants in Soils](#). 6p., 2009
- [Use of Dried Manure Solids as Bedding For Dairy Cows](#). 9p. 2010
- [Using Manure-Based Composts in Turf Maintenance](#). 4p., 2007.

Final reports

- [Application of Sewage Biosolids to Agricultural Soils in the Northeast: Long-term Impacts and Benefit Uses](#). 2005.
- [Biosolids Applied to Land: Advancing Standards and Practices](#) (NRC). 282p, 2002.
- [Case Study: Eagleview Compost Dairy Barn](#). 12p, 2009.
- [Connecting Farm Composts With Agriculture Users Demonstrating Compost Assets With Growers](#). 78p, 2007.
- [Frequency of Re-Bedding With Dairy Manure Solids - Results](#). 59p, 2008
- [Hygienic Implications of Small-Scale Composting in New York State](#). 71p, 2004.
- [Improved Manure Management to Enhance Dairy Farm Viability](#). 26p, 2003.
- [New York City Materials Exchange Roundtable](#). 14p, 1997.
- [On-Site Composting of Meat By-Products](#). 15p. 2001.
- [Packaging Waste: Whose Responsibility Is It Anyway?](#) 24p, 1998. ([appendices](#))
- [Pathogen Analysis of NYSDOT Road-Killed Deer Carcass Compost Facilities](#). 78p, 2008
- [Pay As You Throw For Large Municipalities](#). 32p report of the New York City Roundtable, 2000.
- [Quality of New York State Agricultural Composts](#). Report and data on 25 NYS manure-based composts and on compost label and guideline options, 2003.
- [Reducing the New York City Waste Stream: The Potential Role for Composting](#). 38p, 1998.
- [Small to Medium Scale Composting of Food Wastes in New York City](#). 65p, 1999.
- [Using Manure Solids as Bedding](#). Final report, 128p, 2008.

Health and safety

- Composting
 - [Health Impacts of Composting Air Emissions](#). Article published in Biocycle 48(11):44-50, 2007.
 - [Compost Facilities: Off-Site Air Emissions and Health](#). 23p literature review. 2007.
 - [Composting Health Considerations](#). 1p discussion, 1996.
 - [Health & Safety Guidance for Composting in the School Setting](#). 2p illustrated fact sheet. 2005.
 - [Hygienic Implications of Small Scale Composting in New York State](#). 71p report on home compost quality. 2004.
 - [Health & Safety Guidance for Small Scale Composting](#). 2p illustrated fact sheet. 2004.
 - [Municipal Yard Waste Composting Operator's fact sheet - Health & Safety Precautions](#). 1p fact sheet addressing compost workers. 1992.
- Sewage sludge
 - [Compost Air Emissions Health Studies](#). 6p literature review. 2007.
 - [Compost Facilities: Off-Site Air Emissions and Health](#). 23p literature review., 2007.
 - [Investigation of Alleged Sludge Health Incidents Associated with Land Application of Sewage Sludges](#). 22p article published in New Solutions 12(4):387-408. 2002.
 - [Sewage Biosolids Land Application: Reported Health Incidents](#). 2p summary of health investigations and link to a matrix (2008) of locations of incidents and symptoms reported. 2007.

Sewage sludge

- Health and safety

- [Compost Air Emissions Health Studies](#). Literature review. 2007.
- [Compost Facilities: Off-Site Air Emissions and Health](#). Literature review. 2007.
- [Investigation of Alleged Sludge Health Incidents Associated with Land Application of Sewage Sludges](#). 22p article published in *New Solutions* 12(4):387-408. 2002
- [Sewage Biosolids Land Application: Reported Health Incidents](#). 2p summary of health investigations and link to a matrix of locations of incidents and symptoms reported. 2007.
- Local, state and federal rules
 - [A Brief Summary of the Federal Standards for Land Application of Sewage Sludges](#). 3p summary of the US EPA Part 503 rules, 1997.
 - [Comments on Proposed US EPA Standards for Dioxins in Land Applied Sludge](#). 7p critique by 7 Cornell faculty., 2000.
 - [Proposed Revisions to Part 360 Rules](#). 12p comments by 6 Cornell faculty on NYS Department of Environmental Conservation rules pertaining to land application of sewage sludges., 2002.
 - [Review of Risk Assessment for Dioxin in Land Applied Sludges](#). 8p comments on US EPA risk assessment. 1999.
 - [Recommendations for Municipal Sludge Ordinance/Rules](#). 8p information to assist in drafting municipal rules restricting land application of sewage sludges. 2003.
 - [The Role of Municipalities in Regulating the Land Application of Sewage Sludge and Septage](#). 66p article published in the *Natural Resources Journal* 41(1):77-123. 2001.
 - [The Significance of the Recent Virginia Supreme Court Decision on Local Ordinances Regulating Land Application of Sewage Sludges](#). 1p discussion. 2001.
- National Academy of Sciences Review
 - [Biosolids Applied to Land: Advancing Standards and Practices \(NRC\)](#). 282p report, [press release](#) and [summary](#). These refer to the NRC report. 2002.
 - "Comments on" [Standards for the Use of Disposal of Sewage Sludge: Agency Response to the NRC Report on Biosolids Applied to Land and the Results of EPA's Review of Existing Sewage Sludge Regulations](#), 26p comments on the plan of US EPA to respond to the recommendations of the NRC report. These comments appear in the *Federal Register* 68:17379-17395, 2003.
 - [Land Application of Sludge Sludges \(aka Biosolids\): The Case for Caution](#). 29 slide Powerpoint presentation to the NRC, 2001.
- Northeast Research Committee on Land Application
 - [Biosolids/Sludge publications](#) available from the Universities participating in the Northeast Regional Committee on Land Application of Sewage Biosolids.
 - [Guidelines for Application of Sewage Biosolids to Agricultural Lands in the Northeastern U.S.](#) 36p recommendations developed by 9 scientists from 5 universities, 2007.
 - [Members and Affiliates](#) of the Northeast Regional Committee on Land Application of Sewage Biosolids.
 - Northeast Regional Committee on Land Application of Sewage Biosolids: Committee Reports. [Final Report](#). 2006 - While this multi-state research project has terminated, the Committee continues to work together as a Coordinating Committee on the "Use of Residuals in Agriculture in the Northeast" (NECC-1010). Minutes [2004](#), Annual Report [2004](#), Annual Report [2003](#), Annual Report [2002](#), and Annual Report [2001](#).
 - [Research publications](#) of the Northeast Regional committee on Land Application of Sewage Biosolids. 6p list of references.
 - [Research Project Proposal](#) of the Northeast Regional Committee on Land Application of Sewage Biosolids. 5p document.
- Risk analysis and research
 - [Comments on Proposed EPA Standards for Dioxins in Land Applied Sludge](#). 7p critique by 7 Cornell faculty, 2000.
 - [Land Application of Sewage Sludge: An Appraisal of the US Regulations \(The Case for Caution\)](#). Article critiquing the US EPA risk assessment on which the federal Part 503 rules pertaining to land application of sludges are based. Published in the *Int. J. Environment and Pollution* 11(1):1-37, 1999.
 - [Organic Chemicals in Sewage Sludges](#). Article reviewing the presence and significance of organic chemicals in sewage sludges. Published in the *Science of the Total Environment* 367(2-3):481-497, 2006.
 - [Review of Risk Assessment for Dioxin in Land Applied Sludges](#). . 8p comments on US EPA risk assessment, 1999.
 - [Scientific Papers on Sludge by Cornell Faculty](#). Links to abstracts and articles.
 - [Septage Quality and its Effect on Field Life for Land Applications](#). Article on limits to land application due to metals in septage (septic tank pumpings). Published in the *Journal of the American Water Resources Association* 39:87-97, 2003.
- Use and guidelines
 - [Considerations for Dairy Farms Regarding Use of Sewage Sludges, Sludge Products and Septage](#). 23p report and 6p [summary](#) of a document by 7 Cornell faculty and Extension educators, 2003.
 - [Guidelines for Application of Sewage Biosolids to Agricultural Lands in the Northeastern U.S.](#) 36p recommendations developed by 9 scientists from 5 universities, 2007.
 - [Home Garden Use of Milorganite®](#). 2p fact sheet addressing questions about use of this dried sewage sludge product in the home garden, 2006.
 - [Land Application of Sewage Sludges](#). 6p section of the Cornell Guide for Integrated Field Crop Management pertaining to the use of sewage sludges, 2006.
 - [Using Organic Matter in the Garden](#). 13p fact sheet on use of various soil amendments including manure, sewage sludge and compost, 2000.

Soil quality and testing

- [A Comparison of Tests for Extractable Copper and Zinc in Metal-Spiked and Field-Contaminated Soil](#). Article published in *Soil Science* 174(8):439-444. 2009. [Abstract only](#).
- [Contaminants in Soils: Overview of Key Topics](#). PDF slide presentation about sources of soil contaminants, pathways of exposure, devising and implementing appropriate soil sampling strategies, interpreting test results, and best practices for healthy gardens. 2010.
- [Guide to Soil Testing and Interpreting Results](#). 6p fact sheet, 2009.

- [Healthy Soils, Healthy Communities](#). Links to research and education partnership with urban gardeners:
 - [Project information sheet, summary/abstract and overview poster](#). 2010.
 - [Best Practices for Healthy Gardening: What Gardeners Can Do"](#) ([English](#) and [Spanish](#) versions), 2pg. 2011.
 - [Dilmun Hill Student Farm](#) - research farm operated by Cornell students.
 - [Student Farm Studies Soil Remediation](#) - TompkinsWeekly article. 2010.
 - [Healthy Soils, Healthy Communities](#) - GreenThumb workshop presentation and updated on soil testing. PDF slide presentation. 2010.
 - [Sample results report](#). 7pg. 2010.
 - [The dirt on urban gardens: Some contamination but help is on the way](#). Cornell Chronicle article. 2010
- [Science Cabaret on Air](#). Two radio interviews addressing soil contaminants in gardens: information and solutions. [Interview 1](#). [Interview 2](#). (mp3) 2010.
- [Soil Considerations for School and Community Gardens](#). Presentation by Jonathan Russell-Anelli to Extension educators that covers topics relating to urban agriculture and soils. 57-minutes. 2010.
- [Soil Contaminants and Best Practices for Healthy Gardens](#). 4p fact sheet, updated October 2009.
- [Sources and Impacts of Contaminants in Soils](#). 6p fact sheet, 2009.
- [The Cornell Nutrient Analysis Laboratory](#) (CNAL) provides analysis of soil, plant, and water samples for farmers, growers, extension educators, state and federal agencies, regulators, home gardeners, researchers, and many others within the state, nation, and world.
- [Agro-One Services](#) - [Testing for soil pH and fertility](#).

Youth and teacher

- [School Composting](#)
 - [Best Ever Compost](#). 5p illustrated instructions of worm compost recipe for youth, 1995.
 - [Bin Designs](#). 15p document illustrating several compost bin systems, 1996.
 - [Building a Soda Bottle Bioreactor](#). 3p illustrated document shows how to build soda bottle composter, 1995.
 - [Building a Two-Can Bioreactor](#). 3p illustrated document shows how to build a composter using two trash cans, 1995.
 - [Compost Quiz Game](#). 13 question quiz for youth, 1995.
 - [Composting as a Topic for Independent Student Research](#). 1p document explains how composting can be a teaching tool, 1995.
 - [Composting as a Waste Management Technique](#). 1p document explains how composting fits into waste management, 1995.
 - [Composting Indoors](#). 1p overview of indoor composting options, 1995.
 - [Culturing Microorganisms](#). 2p document on how to use microorganisms in the classroom, 1995. [Frequently Asked Questions](#). Q &A for small scale composting, 1995.
 - [Frequently Asked Questions About Worm Composting](#). Q & A, 1995.
 - [Health & Safety Guidance for Composting in the School Setting](#). 2p illustrated fact sheet, 2004.
 - [High-Tech Bioreactors](#). Instructions for how to build complicated composter for experiments, 1995.
 - [Hygienic Implications of Small Scale Composting in New York State](#). 71p report on home compost quality, 2004.
 - [Ideas for Student Research Projects](#). 2p document with ideas, 1995.
 - [More About Worms... And Related Classroom Activities](#). 1p document, 1995.
 - [Observing Compost Invertebrates](#). 1p instructions, 1995.
 - [Observing Compost Microorganisms](#). 1p instructions, 1995.
 - [Outdoor Composting](#). 2p instructions, 1995.
 - [Plant Growth Experiments](#). 2p instructions, 1995.
 - [Potential Cross-Curricular Applications of a Worm Bin For the Elementary School Classroom](#). 2 p document with ideas, 1995.
 - [Preparing Slides of Microorganisms](#). 2p instructions, 1995.
 - [Six Easy Steps to Setting Up a Worm Bin](#). 2p instructions, 1995.
 - [Techniques for Detailed Study of Compost Microorganisms](#). 1p instructions, 1995.
 - [Trash Goes To School](#). Series of solid waste lesson plans for grades K-12, 1991.
 - [Troubleshooting Compost Problems](#). 1p chart, 1995.
 - [Troubleshooting Worm Bins](#). 2p solutions, 1995.
 - [Why Composting?](#) 2p document explaining the reasons, 1995.
 - [Worm Composting Basics](#). 3p instructions, 1995.
- [Composting in the Classroom. Guide for student composting research](#). 116p book on using composting in teaching grades 9-12, including background information and experiments to try, 1998.
- [Composting: Wastes to Resources](#). 36p illustrated guide for educating youth about composting, 2 posters: "Best Ever Compost" and "How Does Composting Work" and 11 designs for composting systems, 1996.
- [Do You Know Where Your Garbage Is?](#) 12-minute video for youth which presents options for what we can do with the garbage that we can't reduce, reuse, or compost. Animated characters and documentary footage explores the controversial issues of composting, incinerating, and landfilling and how these can be part of a community's waste management plan. 1992.
- [It's Gotten Rotten](#). Links to information on how to purchase (or [free download](#)) this 20-minute video on the biology of invertebrates in compost. [Teacher's guide included](#). 1997.
- [Life After The Curb](#). 20-minute video for youth showing how materials are reprocessed into new products. It shows separation and recycling processes and end products for plastic, steel, aluminum, glass, and paper. 1990.
- [Recycling: Mining Resources From Trash](#). 33p guide and 5 posters that shows what's in your trash can, what's made of recyclable materials, and where it should go. 1990.
- [What about Waste?](#) Activity booklet introducing youth to a variety of subjects on environmental science. 25p, 1990.

Other

- [Agricultural Plastics - Boon or Bane?](#) An agricultural waste market research study for NYS. 1997.
- [Cornell University Compost Club](#). A student organization dedicated to responsible waste management and improving composting. 2011.
- [Get the Goods: Not the Garbage](#). 255p educational instruction to teach limited resource homemakers about waste reduction. 1994.
- [Packaging Waste: Whose Responsibility Is It Anyway?](#) (appendices)
- [Pay As You Throw For Large Municipalities](#). 32p report of the New York City Roundtable. 2000.
- [Recycling Agricultural Plastics in New York State](#). 35p report of the Cornell ad hoc burning group. 2003.
- [Recycling Dairy Plastics - Best Management Practices to Keep Plastic Clean Enough to Recycle](#). 2p poster developed by [Lois Levan, Cornell Dept of Communication](#). 2009.
- [Recycling Horticulture Plastics - Best Management Practices to Keep Plastic Clean Enough to Recycle](#). 2p poster developed by [Lois Levitan, Cornell Dept of Communication](#). 2009.
- [Waste Prevention Tools at Work](#). 90p ([manual](#)) and 13 minute video ([free download](#)) will help solid waste officials, educators, recycling professionals, and businesses reduce the amount of solid waste generated by businesses, with a particular focus on retail, hospitality, and small office sectors. Includes waste assessment methods, cost evaluation information, and work sheets. 1994.
- [Waste Reduction Through Consumer Education](#) (summary)
- [Webinars](#) - current and archived webinars on various composting topics..

[Top](#)

[About CWMI](#) [Composting](#) [Farm Waste Management](#) [Sewage Sludge](#) [Soil Quality](#) [Health and Safety](#) [Resources](#) [Search](#) [Home](#)



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