

January, 2012 Food for Thought

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Worms Eat My Garbage
This is the ultimate worm
composting book. A must
read if you are serious
about composting with
worms. 1997; Flowerfield
Enterprises.

Greetings and Happy New Year,

As we start the new year I am excited to think about all the possibilities that lie ahead for NHAITC. We have some ambitious goals as we continue to enhance our program to meet the needs of more educators and students. I plan to reinstitute regular teacher workshops starting with one on school composting on February 9 (see notice for details). Expanding the reach of our Ag Literacy program is on the horizon. Developing and upgrading educational resources will also take place. We now have resource packets on apples, pumpkins, turkeys and Christmas trees that include a number of on-line links. Let me know if you are interested in utilizing any of those.

To accomplish some of our goals, we are looking for volunteer help. Some tasks require taking time during the work week to go into schools. Other tasks can be done at home on your own time. We need volunteers to help staff our information table at venues such as the Farm and Forest Expo. If you are interested in sharing a few hours with us, please contact me to complete a volunteer interest form so we can match your skills with the most appropriate opportunity for service.

We are also looking for more ways to reach teachers. If your school or SAU has a staff development day we'd love to present a workshop. Is your PTO/PTA looking for new ways to engage children with the community? We can provide some ideas. Would your school be interested in planning an Agricultural Awareness Day? These are all ways that NHAITC can be a resource to enhance agricultural literacy where you live or work. If you have other ideas, give me a call or send me an email and we can explore possibilities.

I look forward to connecting with more of you in the coming year as we work together to create a more agriculturally literate population.

Best wishes,

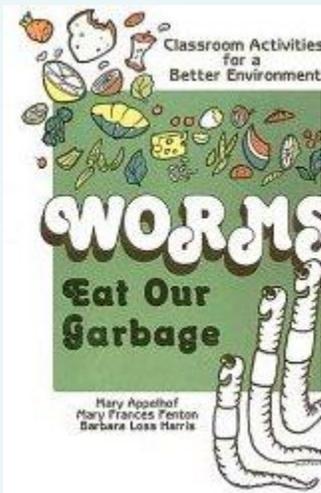
Ruth

Ruth Smith, Coordinator

Composting at School

"A Rind is a Terrible Thing to Waste"

Schools, like most institutions that serve food produce a great deal of waste material. Reducing the amount of waste both in the preparation and the consumption side of the equation is an important goal, but utilizing the waste can greatly reduce the environmental and economic impact of



Appelhof, Mary, Frances Fenton, and Barbara Loss Harris.

Worms Eat Our Garbage: Classroom Activities for a Better Environment

This curriculum uses over 150 worm-related classroom or home activities to develop problem solving and critical-thinking skills in children grades 4-8. Activities integrate science, mathematics, language arts, biology, solid waste issues, ecology, and the environment. Flowerfield Enterprises.

Grossman, Shelley C., Toby Weitzel and Melissa Weitze.

Recycle With Earthworms: The Red Wiggler Connection
1997; Shields Publishing.

Kalman, Bobbie and Janine Schaub. *Squirmy Wormy Composters*

Some topics covered are: worm bins, how worms eat, setting up a vermicomposter, a school composting project and more. Crabtree Publishing.

Payne, Binet and Paul Bourgcosis.

The Worm Café: Mid-scale

disposal. There has been a resurgence of interest in composting food waste in recent years. From small backyard bins to municipal processing plants, thousands of pounds of waste are being recycled and diverted from landfills and incinerators. At schools composting not only reduces waste, harvests nutrients but also provides incredible learning opportunities for students. Before you say, "We can't do that at my school", read on to explore a wide variety of ways that composting can be done and how obstacles can be overcome.

Composting is a natural process whereby plant and animal materials are consumed and broken down by invertebrates (worms, insects, etc.) and microbes and transformed into rich soil. Creating a space to compost our waste is a way to mimic what nature does so well and close the loop of nutrient cycling by using the finished product on our gardens and farms.

There are many myths and misconceptions about composting. The first obstacle to overcome is the myth that all compost stinks. Compost which is managed properly does not smell. The key is maintaining the proper balance of nitrogen and carbon and proper moisture level so that the decomposition happens aerobically. Another myth is that you need a lot of space to compost. While that can be true, it can also be done on a small scale right in the classroom using red worms. The article below provides a sample of how that can work. To learn about a wider variety of composting options, join us for an educators' workshop on Thurs. February 9 at Nottingham School. See the notice below.

Getting Started with Composting Worms

[Advice from Joan O'Connor](#)

To provide educators with some ideas for starting a worm bin in the classroom, I spoke with NH's own "Worm Lady", Joan O'Connor from Joan's Famous Composting Worms. She makes a business out of raising and selling worms to help get people hooked on composting. Joan said, "I knew I was on to something when Oprah and Martha Stewart started doing shows about worms."

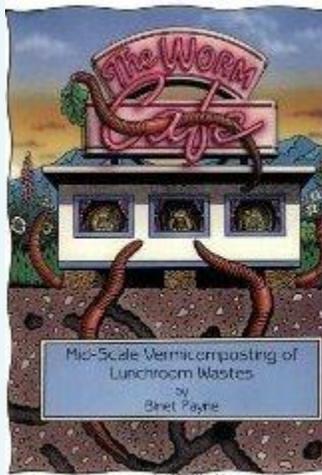


The equipment needed for a worm bin is fairly simple. Some of the resources listed elsewhere in this issue provide material lists and sources of bins. However, Joan's advice is to not get hung up on a fancy worm palace. She uses old plastic containers, old coolers, anything larger than 10 gallons. Up to your knee caps is a good depth. Drill two 1" holes in one corner of the bottom and put screening over it for a drain. Put a pan under this to catch any of the "compost tea" which drains out. This can be used on plants as well as the compost.

Place shredded newspaper (not colored or glossy) in the bottom of the bin. Check to make sure the newspaper ink is either soy or water based. Then add 2-3" of moist peat moss. Add the worms. You will get about 1000 worms per pound. They eat their own weight in food every couple of days under ideal conditions (this provides a great opportunity for math problems with kids). Put more newspaper and peat moss on top of the worms. The lid of the container can be used if a hole is cut out and a screen placed over it or use black landscaping fabric or even an old t-shirt held on with a giant

Vermicomposting of Lunchroom Wastes

Includes activities from conducting a school-wide waste audit to setting up worm bins in classrooms and using worms as teaching tools for science lessons. 1999; Flower Press.



Story books

Brendler, Carol
Winnie Finn, Worm Farmer

A light-hearted story about a young girl who raises award winning worms.

2009; Farrar, Straus & Giroux.

Appropriate for ages 4-8.
Siddals, Mary McKenna
Compost Stew

A rhyming recipe for compost. 2010: Tricycle Press. Appropriate for ages 3-7.

Sources of Worms and Worm Bins

Joan's Famous Composting Worms

www.joansworms.com

Joan O'Connor, PO Box 387, Henniker NH 03242. 603-496-1718. Email:

joconnornh@yahoo.com

Joan sells worms by the pound along with instructions and background information.

rubber band to cover the bin. Just make sure there are no gaps. "Worms are escape artists", says Joan.

The worms that are commonly used for composting are called red wigglers. These are different from earth worms and night crawlers that you might dig up in your garden. They are known for their efficiency of converting waste to "black gold". See the resource list for sources of worms, including Joan.

Place the worm bin in a spot where the temperature ranges from 60-80 degrees. They will survive in colder areas but will not be as productive. Feed them by burying the waste in one corner. The next meal can be buried in an adjoining spot. Rotate the contributions to the bin so you are adding to new places each time. They will eat egg shells, scraps and cores from fruits and veggies (avoid citrus peels), and coffee grounds. They benefit from a good mixture - "a balanced diet". Do not feed them meat, fish or anything oily. Joan encourages creativity with food which also sets up opportunities for experimentation and inquiry based learning. She puts some of her scraps in the freezer, then when they thaw they are mushy and easier to consume. Another option is to make a veggie smoothie in the blender for a "worm treat".

For more details on maintaining your bin, check out some of the resources listed. Joan reminded me that the worm bin is home to more than red wigglers. There's a whole community in there with everyone doing their job. Students can look for other organisms as well and explore topics such as food webs, life cycles, animal behavior, habitat and so much more.

The best part about these classroom critters is that they earn their keep by reducing up to 20% of your trash and converting it to useful, nutrient rich soil. This is a win-win project from every perspective and great for all ages.

Resources and Links

New Hampshire Department of Environmental Services

View regulations about composting. See section 608.03. Schools can compost both pre- and post-consumer food on-site; just not meat or dairy. <http://des.nh.gov/organization/commissioner/legal/rules/documents/env-sw600.pdf>

Northeast Resource Recovery Association

<http://schoolrecycling.net/composting.htm>

"Composting at Your School: A How to Guide." 2006

This is an updated version of a document published in 1997 by NH Department of Environmental Services. The guide is based on the experience of 2 NH schools which conducted a pilot program in the mid 1990's. It covers information about creating a team, the logistics of composting and educational materials. NRRA has an up to date school composting program and additional resources on their website.

http://schoolrecycling.net/PDF_Forms/worming.pdf

"Worming Your Way to Better Compost!" 2002

This 12-page guide provides step-by-step instructions for setting up and maintaining a worm bin. These are ideal for in classrooms or homes.

Northeast Recycling Council, Inc.

"Composting School Food Scraps and Soil Paper." 2010

Redworms for a Green Earth

www.redworms-greenearth.com

Ken Perry, 380 Rollins Road, Rollinsford, NH 03869.

603-742-2043 Email: redwormsforagreenearth@comcast.net

They sell worms, bins, books and equipment.

Beaver River Associates

www.wormkits.com

RR1 Box 100, Pawlet, VT 05761 800-325-2109

Specializing in prefabricated kits to easily convert plastic totes into worm bins.

Don't Throw it Away! Composting at School Workshop for Educators

Thursday, February 9,

4:00-7:00 pm

Nottingham School, 245 Stage Rd, Nottingham NH

Fee: \$25/person; \$20/person if registering two or more teachers from the same school. Pre-registration is required. Contact us at nhaitc@nhfarmbureau.org to register.

Includes refreshments and resources.

Composting food waste from student snacks and school meals provides many benefits. It recycles waste that otherwise would go to a landfill or be incinerated. Composted food creates useful fertilizer for school and

www.nerc.org/documents/composting_school_food_paper.pdf

This is a straightforward 10-page document that covers the starting and running of a composting program at school. It includes information about different types of composting systems, including worm composting in the classroom and school-wide systems. There are other useful documents on the same website.

City of Cambridge, MA

<http://www.cambridgema.gov/theworks/ourservices/recyclingandtrash/aboutrecycling/schools/recyclinginschools.aspx>"A Step by Step Guide to Lunchroom

Composting". 2010. This 9-page guide was created for schools starting composting programs in Cambridge, MA. Some of the information is specific to Cambridge, but there is some information that will help any school start and run a composting program.

"Compost That Stuff: Frequently Asked Questions." 2010. This is a simple one-page FAQ poster that has good basic information about composting and is a good model for creating informational posters for your school.

Central Vermont Solid Waste Management District.

www.highfieldscomposting.org/miscPDF/Do%20the%20Rot%20Thing.pdf

"Do the Rot Thing." 2007

This is a teachers guide to compost activities from basic compost and soil science activities to advanced lessons.

Hands To Earth: Educating for a Sustainable Future

www.handstoearth.com

This website has comprehensive information on reasons for composting and the positive results that can come from a composting program.

RecycleNow Schools

www.recyclenow.com/schools/compost

Composting activities, on line videos, and a guide to composting are found on this website.

Connecticut Department of Environmental Protection Recycling Program

www.ct.gov/dep/lib/dep/composting/compost_pdf/schmanual.pdf

"School Composting: A Manual for Connecticut Schools." 2002

A guide developed from on the composting experience at Mansfield Middle School. It is similar to the NH guide in its step by step approach. It also includes great activities and lessons involving compost.

The Garden of Oz

<http://www.thegardenofoz.org/composting101.asp> Composting 101 - a great primer on the benefits of composting, how to do it, what to watch for and how to use the finished compost. Not focused on schools, but good basic information.

www.HowtoCompost.org Various articles including "What is Composting" which provide the scientific and practical aspects of composting.

Integrated Waste Management Board, CA

<http://www.ciwmb.ca.gov/Schools/Curriculum/Worms/>

This is a downloadable guide. The guide explores vermicomposting - the practice of using worms to transform food waste into a nutrient-rich finished product. In a school setting, vermicomposting can set the stage for a variety of fun, interdisciplinary activities.

Worms.com <http://www.worms.com/>

A general website covering everything you ever wanted to know about

community gardens. Students learn first hand about natural recycling, invertebrate life cycles, soil science and environmental stewardship.

This workshop will cover background information, hands-on activities and resource materials that will provide the tips and tools needed to start a compost program at your school. Whether your goal is a small worm bin for your class or school-wide food waste management, you will learn what is possible. Examples from other schools including a view of Nottingham's program will provide inspiration. This is a great time of year to start planning for composting this spring or next fall.

Location: Nottingham School is a K-8 school serving about 500 students. They have recently upgraded their compost system after an initial trial period of composting lunch waste. There is a school garden on site which will receive the finished product from their compost efforts.

Presenters: Michelle Carvalho is the principal for Nottingham School and an advocate for school composting.

Jessica Skinner has worked with the Upper Valley Lake Sunapee Regional Planning Commission as a Solid Waste Consultant, advises schools on composting and local foods and currently works with Re.Root.Ed, the local food program for Seacoast Local.

worms and composting.

Worm Woman

<http://www.wormwoman.com/acatalog/index.html> - Mary Appelhof's (author of Worms Eat Our Garbage) website about vermicomposting.

Boreal Wormer

<http://members.shaw.ca/borealwormer/> - An example of indoor vermicomposting in a northern climate. Very good pictures of a worm bin in action!

Garden Web Vermicomposting Forum

<http://forums.gardenweb.com/forums/verm/> - Another great place to pick up tips and connect with worm composters in your area.

New Hampshire Agriculture is More than You Might Think

by Deb Robie

What do worms, alpacas, fish, trees, garlic, bison, deer and flowers all have in common? They are just a very small sampling of the diversity of agriculture here in New Hampshire.

All over our great state you can find the "typical" types of farms: dairy, beef, sheep, vegetable, maple and even goats. What you may not be aware of is the great variety of what is called "niche agriculture" that has grown up in the last several years.

All one has to do is visit the New Hampshire Department of Agriculture web site at www.agriculture.nh.gov to learn about the different agricultural enterprises that can be found. You can find lesson plans for almost any kind of agricultural interest at our website www.nhagintheclasse.org or our national program at www.agclassroom.org which has links to web sites for every state program in the country. We also would love to bring a program to you or help you set up a field trip to a farm. Grant dollars exist for schools to use specifically for field trips. A school in SAU 23 was just given a nice sum of money to take their students out into Grafton County to visit farms. What a fantastic opportunity for the students to learn!!

There are fruit farms all over New Hampshire. Check out www.nhfruitgrowers.org to find orchards in your area. How about an egg farm at www.peteandgerry's.com? Or a red deer farm at www.bonniebraefarms.com. This is just a very small sampling of what our great state has to offer. All of these producers are willing and able to talk to your students and help them understand the agricultural world around them.

Maybe you don't have funding for a field trip but you could send your students on a virtual field trip or a web based scavenger hunt. Geography or social studies lessons could be done by checking out an Ag in the Classroom web site from a different state. Math and science lessons could be as simple as asking some basic questions. For instance, what is the gestation period for a sow, horse, fish or alpaca; or how much feed must a



Ruth Smith is the Statewide Coordinator for NHAITC. She has conducted workshops for educators on environmental and agricultural topics for over 25 years.

Calendar of Events

Farm & Forest Expo

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February 3-4

Center of NH,
Manchester

www.nhfarmandforestexpo.org/

Visit our booth, play FARMO, attend workshops, meet farmers and vendors

Let's Compost at School - Feb 9

Nottingham School
Workshop for teachers, pre-registration is required.

NOFA-NH Conference - March 3

Sanborn Regional High School, Kingston
www.nofanh.org
NHAITC will be presenting a workshop on integrating ag into curriculum.

National Ag Day - March 8

Celebrate agriculture and its role in your life. Ag Lit Program launch.

chicken eat to be able to lay one dozen eggs? How many gallons of water does a cow drink in a day? How does that convert to the amount of milk she produces? Compare that to how many pints are consumed at school.

As you can see the quest for knowledge goes on and on. The resources for finding that information are just a click away and most of it is free.

Gearing up for the 2012 Ag Literacy Program

Charlie Needs A Cloak

Agricultural Literacy has become an annual program where we visit schools with an agriculturally related book and use that book as a launching pad for teaching about food, fiber and natural resources. In 2012 we will be using *Charlie Needs a Cloak*, written and illustrated by NH author, Tomie dePaola. In this book a shepherd named Charlie harvests and processes wool from his sheep so that he can make himself a new cloak. Through the story, readers learn about all of the steps of raising and using wool.

If you are an educator and would like us to come to your class to read this book and demonstrate about wool production, please contact us. If you are a community member interested in reading at your local school, let us know. We will be launching this program on National Agriculture Day, March 8. However we are happy to schedule programs at your convenience throughout the spring.

NHAITC a Co-op Community Partner

Members of the Concord Cooperative Market and Kearsarge Cooperative Grocer (The Co-op) voted at their annual meeting last October to include NH Agriculture in the Classroom as one of twelve community partners for 2012. The Co-op began its monthly Community Partner Program in 2004 as a way to feature and support charitable organizations. Member-Owners of the Co-op vote annually to select twelve non-profits from southern New Hampshire and make a financial contribution to these groups on behalf of all members. This is done by donating five cents every time a customer utilizes a reusable shopping bag at the checkout, and by accepting additional donations from customers. Monthly contributions from these efforts typically range from \$150-\$250.

This was the first year that NHAITC appeared on the ballot. We are honored to be chosen from the list of many worthy non-profit organizations. During the month of January, as the featured non-profit, we will post a display on the Community Partner bulletin board at the Concord store. This will help educate Co-op shoppers about the work that we do. There will also be information about NHAITC in the Co-op's monthly e-newsletter and at the cashier stations to raise awareness and encourage donations.

If you are a regular Co-op shopper, don't forget to bring your own bag during January. If you haven't visited the Co-op before and find yourself in downtown Concord, stop in to the store at 24 South Main Street or to the Kearsarge store at 52 Newport Road in New London (there is no bulletin board there, but the bag credits still apply). To learn more about the Concord Co-op and their Community Partner program visit their website: www.concordfoodcoop.com.

**NH Science
Teachers
Conference - March
12**

Keene State College
www.nhsta.org

**NH Environmental
Educators
Conference - March
14**

Seacoast Science
Center, Rye

**Help Us Start the
Year Off Strong**

Our end of the year fund drive was very successful, but it's not too late to make a tax-deductible donation and help us start the year off strong.

[Click Here to donate](#)
or send a check to NH
Agriculture in the Classroom,
295 Sheep Davis Road,
Concord, NH 03301. Thanks.

