

Steps to a Sustainable Backyard Organic Garden

Overview of compost bins, rainwater catchment systems, and use of plants as a natural pesticide

Tags: Organic gardening, compost bins, rainwater catchment, rainwater harvesting, sustainable gardening

By: Paul Redpath and Joseph Todd

Issue: Your backyard garden can be a tool toward a regenerative sustainable food future

Summary

(Joseph) After the rise of the industrial revolution and the mechanization of processes inherent to life, such as the many ways we acquire basic commodities needed for day to day subsistence, quantity became the goal for production. Look around at America's food production. Vast fields as far as the eye can see of monocultures, the growing of only one species of plant. This is a relatively new practice in human history. Due to the wealth and abundance of cheap fossil fuel energy, these systems can thrive and function without many flaws. Similar notions can be said of animal husbandry. Factory farming has given Americans and many in the first world access to an almost endless supply of animal protein. However, inherent problems in these systems of food production rest in their inability to self-sustain and even regenerate the resources necessary for their function. For example, in natural organic systems, soil typically isn't bare such as (when we till the ground). This then requires we use take special care to keep pests away from the plants we desire and use petroleum based pesticides. Pesticides, herbicides, and fungicides destroy the microbial life in the soil which typically builds resilient and strong plants. Now since the life is gone, the burden of the intervener is placed on us, so now we must maintain soil fertility with petroleum (oil/fossil fuel) based fertilizers. Now the plants become dependent on us for fertility, pest control, and a slew of other conditions necessary for growth. We've even come so far as to modify these organisms at a molecular level to deal with problems we ourselves have created. Irrationality ensues. These methods and approaches to food production have taken a serious toll on the quality of our food, especially in terms of nutrition. Serious consideration into how to make ourselves less dependent on these polluting and destructive methods for food production have always been around but really picked up cultural speed with the revolutionary ideas of the 1960's and 1970's. From those times looking to nature and natural systems for answers to our problems has been widely adopted. Thus the organic movement was born.

(Paul) One way to reduce the chemical content of your food from pesticides and herbicides is to have a backyard organic garden. In order to reduce the cost of these many times expensive projects, systems can be put in place. For example, a rainwater catchment system with compost bins. Soil and fertilizers can many times be the most expensive part of the system so having a

compost bin can reduce this cost significantly. Composting will also reduce the size and weight of garbage picked up by the township. This will reduce the household's ecological footprint and help the overall environment. The rainwater catchment system will reduce the cost of water used for gardening as well as have a large impact on the environment by using water that would otherwise add to runoff and need to be treated at the waste-water treatment plant. The crops that are grown during the summer can help reduce how much produce needs to be bought from the store and also allow the consumer to know exactly what is in their food. This project does have some precautions that must be taken into account. Only plants that are local to the area should be grown, otherwise an invasive species can be introduced and cause harm to the local environment. Overall backyard organic gardening can be a very rewarding and environmentally friendly activity for home owners.

Video Link

<http://www.youtube.com/user/DRJULIEFAGANSTUDENTS#p/a/u/0/9F5iYEGvCMI>

Comments about Local Food Markets

C-Town <http://local.yahoo.com/info-11018813-ctown-new-brunswick>

by consumer1 10/19/2009

This is the WORST market we've ever been to!!! Their vegetables are constantly shriveled and rotting on the shelf. Good luck finding a decent tomato! I've had to return meat twice, It changes color after two days in the refrigerator. They are one of the only stores to accept food stamps, so they mark up the prices so that people on welfare have to pay extra. They charge up to \$7 for a half gallon of ice cream and \$8 for taquitos (10 pieces)! This place is HORRIBLE!!! It is obvious that they just exist to rip off people on welfare and local customers that have no car and can't shop anywhere else. No stars for this place. Please, see for yourself!!! Can't believe that a place like this exists outside of Mexico!! FOR SHAME!!!

Foodtown <http://www.insiderpages.com/b/3718206448/foodtown-new-brunswick>

Knock it down and rebuild it.

mike m.

I go grocery shopping quite often, and on my way home from New Brunswick last week, I was happy to see a Foodtown, because I needed to pick up some things.

I was sorry to stop ... this store was absolutely disgusting. The staff was very unfriendly, and the place was more of a cluttered closet than a grocery store. The store was very busy, but there was only one register opened, and the cashier had no clue what she was doing. A lot of the food was not fresh and the prices were pretty high.

I will never shop in that store again.

Why Start a Backyard Garden

(Paul) Food is the essence of life and must be monitored more closely for quality. One of the most important skills to know is how to get water and how to grow food. These two essential components of life are many times seen as only something you can get from a faucet or bought in a store. The majority of food is bought in the store and comes from far off large scale farms in the Midwest. Backyard gardening brings fresh, pesticide and herbicide free fruits and vegetables right to the consumer's hands without the use of fertilizers. A backyard garden can sound like an arduous task that requires significant inputs with no foreseeable benefits. Organic gardening can cost more than produce bought from the store, but until a person knows how to grow their own food they are truly dependent on a system that may not always be able to provide food. Growing food was common practice for many people at the beginning of the 20th century, but now has become rare because of mass production of food and access to it. This mass production of food has led to many problems. Large scale crop producers also use large amounts of fertilizers and pesticides. With limited attention for each crop this can many times be the only way to get profitable yields. The problem with using large amounts of fertilizers is eutrophication. You can see this common event every time you look in a pond with overgrowth of algae, but the problem is much bigger than that. The Mississippi river runs through many of the largest farms in the US and is used for irrigation. This water makes its way back to the river after watering the highly fertilized plants in the farms. This high nutrient water makes its way to the Gulf of Mexico where it causes large scale algal blooms which can be seen by satellites. These large algal blooms eventually die off and the decomposition of the material by other organism causes extreme drops in dissolved oxygen, in turn causing massive fish kills. These fish kills not only harm local fishermen, but also reduce diversity which can break down an entire ecosystem. Backyard gardens can help alleviate the deep rooted problems of large scale crop production and improve the backyard of those living near the gulf region. More and more individuals want to know exactly where their food is coming from and with backyard gardening you can do just that. Backyard gardens for consumers takes the individual attention some crops need and allows plants to thrive as they should.

The solution to this problem is in part having a backyard organic garden. In NJ gardening can be started in mid-May and continued until October depending on weather conditions and temperature. This five month span can highly reduce reliance on store bought food and in turn reduce eutrophication and wasteful transportation of food from the Midwest. Gardening plots can be bought from any gardening store and set up in the backyard. Addition of soil and seeds with watering on dry days will keep crops growing and yield fresh crops that will taste better than any store bought produce. The problem with produce from the store is that crops must be picked before ripening or else they will spoil while being transported, this causes the taste to be severely affected and many people do not know what a ripe tomato freshly picked tastes like. By setting

up a plot in the backyard not only is a decorative element added to a dull backyard, but also a usable product can be yielded after a short time period and help to keep a family healthy.

Pesticides are used far too often in industrial farms. Pesticides are used to increase crop yield, but have dire consequences that are overlooked due to greed. Pesticides are not perfect and therefore will cause irreparable damage to the surrounding ecosystem. A perfect pesticide will target one or two pests, eliminate only them, and become degraded immediately after. Most pesticides cannot meet these standards. Pesticides like DDT have long lasting unintended consequences. Pesticides are intrinsically meant to be taken up by organisms and cause damage and eventually death to the organism. Pesticides therefore can never be completely segregated to one organism because they infect cellular components that are common between organisms. Insects surrounding a large scale farm are most times affected adversely by pesticides and will be killed after exposure. This action decreases diversity and can destroy an ecosystem if a keystone species is affected. The potential dangers of many of these pesticides are not well studied and can cause irreparable damage that will not be foreseen, as is the case with DDT. Organic gardening is a solution to this problem because with backyard farms large scale farms would not be necessary because the consumption would not be so large that this type of farming would have to be continued.

Compost Bins

(Paul) A compost bin works by breaking down organic material such as banana peels and egg shells into high nutrient soil. This soil can be used in a backyard garden and help to fertilize plants naturally and efficiently. The actual composting process takes about 6-8 months so it is a process that must be started earlier in order to use in a garden during the summer months. Organisms such as earthworms can break down the material faster and therefore can be added to the mix to increase the rate of breakdown. The major component of the breakdown is the microorganism component. These organisms are mostly aerobic organisms and therefore the compost bin must be kept aerated. This is done by drilling hole in the bin and mixing the contents every three weeks.

In order to compost efficiently the correct C:N (Carbon : Nitrogen) ratio must be present. The ideal C:N ratio is 30:1 and can be obtained by layering the compost bin with shredded newspaper, browned leaves, twigs, grass clippings, and organic produce left overs. The carbon component is mostly derived from the shredded newspaper, browned leaves, and twigs; browned leaves have a C:N ratio of around 50:1. The Nitrogen portion of the compost bin is filled by the fresh grass clippings and organic produce left overs. The organic leftovers are where a consumer can reduce food waste tremendously. The average household throws away around 140 pounds of food annually (EPA). This food waste is placed in plastic bags most times which cuts off the supply of oxygen to degrade the organic matter. These plastic covered bags are then placed in landfills where the oxygen levels are even lower and degradation is close to impossible. These organic materials are wasted away in a landfill when they can be collected and used to make soil

and in turn make more crops. This can be done very simply by following the guidelines of aeration, moisture, and C:N ratio in a compost bin. Even if the conditions are not perfect degradation will occur faster than it would ever in a landfill and therefore composting is the better option in so many respects.

Proper aeration and moisture are another component of a well-managed compost bin to keep in mind. The organisms that break down the organic matter the fastest are aerobic organisms. Therefore, the compost bin must have an abundant supply of oxygen so the organisms can do their job best. A compost bin can very easily become oxygen depleted when a large amount of organic matter is broken down at a fast rate and therefore the materials in the bin must be turned at least every three weeks to keep oxygen concentrations up. The bin must also have a sufficient supply of water for the organisms to use for cell components. The most abundant compound in any living organism is water and therefore a compost bin must have it in order to thrive. The most common problem people have when composting is the addition of too much water and as they say too much of a good thing is bad. The addition of too much water will cause the contents to become anaerobic much faster and turning the pile will not fix the problem. The correct amount of moisture should be if a handful of composting material is squeezed then two to three drops of water should come out. To fix the problem of too much water in a compost bin, the lid should be taken off and the bin be left in the sun for a day or too. The addition of brown material will also solve the problem because it will absorb excess moisture.

The temperature of the bin will reflect how well it is being managed. The ideal temperature of a compost bin is between 135-160 degrees Fahrenheit. This information can be used to track the progress of a compost bin. If the temperature is too low then one of the components such as C:N ratio, moisture, or aeration is not correct and must be fixed if efficient composting is to be completed.

After the compost materials have been degraded this now high nutrient soil can be mixed with regular potting soil to make a perfect mix for plants to thrive.

Invasive Plant Species

(Paul) When considering starting a backyard garden one important consideration is which plants to buy. When plants are bought simply on appearance a fatal mistake can be made which will make your garden run for the hills. This mistake is purchasing invasive plant species. Invasive plant species are defined as plants that are not indigenous (local) to the area that out compete and take over large areas. These plants reduce diversity and have a broad effect on the local environment. Many times these invasive species spread to vast areas and therefore are a large problem. Invasive species are characterized by reproducing sexually and asexually, having fast growth, rapid reproduction, high dispersal ability, and ability to live in multitude of environments. The most common cause of these invading plants is humans introducing them to the area.

Invasive species can be under estimated. Invasion of one plant into an area can be caused by many factors. One factor being that a predator that is present in the plant's native land is not present in the foreign land that the plant invades. Predators can act as curbs to plants and can keep diversity prevalent this way, but if a plant is moved to a new area with no predator it will grow uncontrollably and harm the area. Another way invasive species can dominate in a new area is if they are naturally better at surviving in an arid climate. Many plants will not be suited for such conditions and therefore only a small number of plants may survive even though the area is actually quite diverse. The invading species will have very little competition to overcome and will be able to undergo facilitation, which is when an ecosystem has no new niches to fill and therefore other plants have a negative impact due to the growth of the invasive species.

Preventing invasive species in a garden can be simple if a gardener grows plants that are already native to the area. Plants like the purple false foxglove and the red columbine are two beautiful flowers that can be grown in harmony with the New Jersey ecosystem. The resources for which plants have invasive properties are available online or at any flower retailer.

Rainwater Harvesting

(Joseph) Water. It is the origin of life itself. Humans have always had a very ancient and profound relationship with water. Whether we look to the surfing rituals of the aboriginal Hawaiians, or modern day children playing in an open fire hydrant on a city corner, we need water. Seeing as how we can survive up to three weeks without food, and only three DAYS without water, that statistic in and of itself shows its importance.

History of Rainwater Harvesting

Many cultures before our own have used the rain that fell on their societies in a variety of ways. Ancient peoples of Southeast Asia would collect and store their rainwater in ponds and trenches to help aid them with rice production. Ancient Indians would collect and store rainwater from their dwelling rooftops. Evidence of this can be dated back almost 3000 years. Other civilizations such as the Roman Empire also employed many rainwater harvesting technologies. Their vast aqueduct systems made use of the abundant rain and stored them in underground pools and stone cisterns. In addition to this, they used these systems for a low-tech version of air conditioning. In specific areas where these pools of cool water resided, the phase change of liquid water to gas through evaporation would have a cooling effect. These are just a few of the ways that ancient peoples have used the capturing and storing of rainwater for their benefit.

Modern Day Rainwater Harvesting

Now where does this leave us today? The third world very much so still utilizes this technology due to lack of availability of resources. Yet, in the first world the need to catch and store rainwater hasn't been employed due to the centralization and availability of piped systems to carry and store water from a variety of locations such as wells dug into aquifers, rivers, lakes,

even desalination (salt removing) factories near oceans. Plentiful water is a much overlooked blessing to many, yet these processes that create this abundance also create problems. Pollution is a major source of woe for many in the first world, especially when it pertains to water. Contamination of groundwater, rivers, lakes, the ocean, the problems are many. So we employ the power of water treatment plants to clean second generation pollution problems. This however also gives us another problem in chlorination of our water for sanitation purposes. Chlorine has been found to cause developmental and general health problems when ingested or used topically over long periods of time, even in minute quantities. (<http://www.dailymail.co.uk/news/article-431777/Chlorine-bathwater-linked-cancer.html>) So how can we cut off all of these problems at their inception? Utilizing what falls from the sky.

Typical rainwater harvesting systems invoke existing infrastructure for this resource. Water catchment vessels such as buckets, barrels, or cisterns are used to collect the rainwater that falls from rooftops of various structures. Such structures could be a house, large office building, or even a small backyard shed. These vessels are then placed strategically where existing downspouts are to store the excess water. Sizing of a water catchment apparatus depends on area of the roof and your own personal need.

Rainwater Quantity Formula 1 inch of rain + 1 square foot of roof = 1/2 gallon of rain water

Using this formula you can aptly figure what size system would be appropriate for you. This is in addition to what you're using the water for. Gardens, toilet systems, outdoor showers. There are many uses.

Typically in the system there are two main components: The main valve for releasing stored water and an overflow valve for when the catchment device is full. Many commercially made barrels have excellent designs for the placement of these. Usually the main valve is placed towards the bottom and the overflow from the top. The overflow feature of most barrels can be attached to other barrels for networked storage. This however can be problematic in finding leaking issues, sometimes it's best to have one large centralized cistern instead of many. Also the overflow can be directed to a rain garden or pond placed at the lowest point on the property. Or it can merely be direct to the drainage areas where the downspout of the existing gutter system would have originally led to.

Types of storage

When deciding what type of storage material to use, personal factors come into the equation. Monetary issues are important to many. Commercial rain barrels can cost up to \$200-300. Some recycled food grade barrels can be acquired and converted for as little as \$30. Also important factors to consider: what type of property do you have? Are you on a rural homestead in the country or do you live in a row home in the city? Orientation of the sun is also vastly important. If using a polyethylene storage container, you don't want it to bake in the hot sun all day. Contaminants from the plastics could leach out and cause problems for where the water is used.

Shade is recommended for these type of storage systems. Other storage used for their positive and negative qualities can be found in this chart:

Organic fertilizing techniques

(Joseph) In organic gardening using techniques and methods employed in nature is our best route to a successful healthy garden. This health and wealth of course begins with the soil. A healthy soil is a healthy world. So what makes soil fertile? Here we look again to nature to see the cycles that contribute. Organic matter which is typically found in the dead/decaying remnants of plants and animals, dynamic accumulators, and root die off in older plants are major sources for nutrient cycling in nature. So we should take these facts and utilize them for fertilization.

Green manures These are crops that are grown with the intention of digging them into the ground to add to soil fertility. This is usually due to the fact that such plants are dynamic accumulators (plants that take up vast quantities of a specific nutrient). Such plants include:

• Fava beans • Mustard • Clover • Vetch • Buckwheat • Lupin • Fenugreek • Sunn hemp • Alfalfa • Velvet bean • Tyfon • Ferns of the genus Azolla • Oats • Rye

Cover crops/ dynamic acculators Such crops are used to collect nutrients needed for themselves that can also be utilized for other plants that do not have the capacity to produce or accumulate said nutrients. Well known nutrient accumulators are plants belonging to the legume family. These plants fix nitrogen from the air with the help of symbiotic bacteria that reside in the plants root zone. Other plants capture and sequester minerals needed for optimum plant growth and such plants include:

Arrowroot • Borage • Bracken • Buckwheat • Carrot leaves • Chicory • Clovers • Comfrey • Daikon • Dandelions • Groundsel • Kelp • Lemon Balm • Marigold • Mentha (Mint) • Stinging Nettle • Strawberry leaves • Yarrow

How communities come together for food self-autonomy

NPR show on July 15 about a vermont town that "grew their own food". Prices for the home grown food were substantially higher though, so people tended to still gravitate to the local supermarket. So the farmers tried to reduce their costs by implementing more cost effective farming methods. Transcript of the article below. There is an audio and newstory which you could get by going to the NPR website.

< Vermont Town's Food Focus Still A Growing Concept >

Copyright ©2011 National Public Radio®. For personal, noncommercial use only. See Terms of Use. For other uses, prior permission required. text size A A A

Heard on Morning Edition

July 15, 2011 - STEVE INSKEEP, host:

A town in northern Vermont is celebrated as the scene of a local food revival. Small farms are multiplying around this town, which is called Hardwick. The hard part, though is making that local food cheap or convenient enough for local people to eat it. They're working on that. And Dan Charles has our report.

DAN CHARLES: Ben Hewitt as much as anyone made Hardwick famous. He's a writer. He lives down the road from Hardwick, and what he saw happening there struck him as unusual, even odd.

Mr. BEN HEWITT (Writer): Here's this town, you know, unemployment rate 40 percent higher than the Vermont state average; median income 25 percent lower; and then there was this thing happening around, you know, so-called sustainable agriculture and local food.

CHARLES: This thing was lots of small farms starting up. One local farmer claims the area around town has more organic farms per capita than anywhere else in the world. Also a thriving local grocery co-op; a busy farmer's market; even a classy restaurant where almost anything you eat grew or grazed on land nearby.

So Hewitt wrote a book about Hardwick, "The Town that Food Saved."

(Soundbite of chatter)

CHARLES: At the local high school, Hazen Union, some students in senior-level English classes have been reading and discussing that book as a class assignment. And they don't like it very much, they don't think Hewitt told the whole story. Derek Demers, for instance.

Mr. DEREK DEMERS: He only covers one side of the town. There's the side of the town that is for this local food movement, but there's, I think, even a greater side of the town, with more people that can't afford the local food movement. I work at our local supermarket grocery store, and I see most of the people in the town there.

CHARLES: That supermarket food is shipped in from far away, but it's mostly cheaper than the local squash and greens and tomatoes on sale at the town co-op.

Ricky Wetherell says that's why people go to big chain supermarkets in Hardwick and everywhere.

Mr. RICKY WETHERELL: I feel like the whole world is sort of moving towards even more, you know, not local.

Mr. DEMERS: But at the same time, awareness, awareness is going up so much lately, especially around our area. So there's, like, there's two sides to this food thing, and both of which seem to be growing, so...

Mr. WETHERELL: Yeah. And I totally agree with that.

CHARLES: The students point out that some of their town's successful local farms are selling high-priced cheese and organic tofu in places like Boston and New York. It's not really for the locals.

Senior Morgan Worden...

Ms. MORGAN WORDEN (Student): And it's not that people don't want to eat healthy, because we do see the benefits of eating locally and healthfully. But we just simply don't have the money to do so. And that's the sad thing.

CHARLES: But this is not the end of the story. Because some people in Hardwick are trying to change that and make the town's local food everybody's food.

Pete Johnson, for instance; he owns one of the biggest organic farms in the area, Pete's Greens. From the roadside above his farm, you see seven greenhouses lined up side-by-side; beyond them lie 50 acres of fields with crops just emerging from brown soil.

Mr. PETE JOHNSON (Organic Farmer): You know, some of this food has been kind of fancy and on the fringes and perhaps a bit overpriced because the efficiencies of production are low. I mean a lot of these farms, our farm, is small, and it's really diversified, which means that we're not particularly efficient at raising anything.

CHARLES: So Johnson is moving his farm a little bit in the industrial direction - trying to get bigger and more efficient.

Mr. JOHNSON: You want to see our new infrastructure, briefly?

CHARLES: Love to see it.

(Soundbite of door)

CHARLES: He rolls up a door at one end of greenhouse, and suddenly we're looking at a giant construction site.

(Soundbite of banging)

Mr. JOHNSON: We had a barn fire here this winter and so now we're rebuilding our facility, and we're doing things like building a very large freezer.

CHARLES: That's to store his broccoli or berries to sell at markets all winter. He's buying equipment that will cut and wash vegetables, puree squash, anything to make it more convenient for busy people.

Mr. JOHNSON: That's really a key part of reaching a bigger group. And then what's the point of doing this if we're only reaching the seven percent who are already converted, you know?

CHARLES: Johnson says he wants people to rely on local food and local farmers for all kinds of reasons.

Mr. JOHNSON: For me, one of the biggest ones is the cultural aspects. You know, these hills used to be populated by small farms. Just cluttered with small farms everywhere. And now, I mean even with this resurgence we have going on, we don't have the culture that we used to have.

CHARLES: A culture where everybody knows a farmer and knows what it takes to grow food.

Mr. JOHNSON: When I graduated from college in 1997 and I told my friends I was going to be a vegetable farmer, there was no response. It was just like they didn't know where to go with that, you know? And now I tell people what I do and everybody has some story to connect to it and is excited about it. And young folks, more and more of them want to stay here. They see being involved in one of these businesses, or starting their own, as an exciting future.

CHARLES: Even managers at the two local supermarkets in Hardwick are now trying to put a few more local vegetables on their shelves.

Lynn DeLaricheliere, at the Grand Union supermarket, says her corporate supervisors took some convincing.

Ms. LYNN DELARICHELIERE (Supermarket Employee): But they're understanding now. Once you make them see and they actually come to this town and realize how important it is, it does - it's going to happen.

CHARLES: Do you have any concerns?

Ms. DELARICHELIERE: No. I want local. The more the better.

CHARLES: What got you interested in doing this?

Ms. DELARICHELIERE: The people. It's the first question they ask: Where's the corn from? Where's the lettuce from? Where are the cucumbers from? You know, are they local? This is a town that's - it's different. It's special.

CHARLES: And that's what you hear from a lot of people in Hardwick.

Mr. ZACH HARTLING: The community here is so tight; like everybody knows everybody.

CHARLES: Zach Hartling is one of the students I talked to at Hazen Union High School. He moved here from Connecticut and he still has an outsider's perspective on the place.

Mr. HARTLING: So I think that sense of community, and knowing like where the food's coming from.

CHARLES: Really knowing where it comes from - knowing whose hands harvested it.

Mr. HARTLING: That just has a huge impact on the way things work.

CHARLES: The longer these high school students talk, the more they seem to come around to the idea that they and a lot of people in town do participate in local food one way or another.

Mr. HARTLING: The farmer's market moved this year to the Atkins Field, and it's getting bigger, like it's expanding a lot.

Mr. DEMERS: Connie's Kitchen just moved into a bigger location right in town.

Mr. HARTLING: That's true. And Connie's Kitchen isn't organic, but...

Mr. FINN KANE (Student): It shows...

Mr. HARTLING: It's local and it shows the growth of this town.

CHARLES: Junior Finn Kane likes to cook. He dreams of opening his own restaurant here.

Mr. KANE: I think the history of this town has always been, you know, of hard times.

Ms. MEGAN URIE: And we persevere.

CHARLES: That's Megan Urie. She lives on a farm. Her mother is growing all the potatoes for meals at Lakewood Elementary School this year.

Ms. URIE: I feel like it's kind of just one of those places in the world that you have hard times, you have a neighbor, and you, you know, you help each other out. It's give and take and it's just - it's nice.

Mr. DEMERS: Like I don't think that, I don't think that food has saved Hardwick; I don't think that Hardwick has found the answer.

CHARLES: Derek Demers is the senior who works at the Grand Union supermarket.

Mr. DEMERS: But I think that Hardwick is on the right path, more so than most other places. I think we're headed in the right direction; we have a great start.

CHARLES: Maybe the same thing can't happen in bigger towns or megacities. Maybe Hardwick is different. But in this small town, at least, food is moving from the fringes of local life back toward its heart.

For NPR News, I'm Dan Charles.

Copyright © 2011 National Public Radio®. All rights reserved. No quotes from the materials contained herein may be used in any media without attribution to National Public Radio. This transcript is provided for personal, noncommercial use only, pursuant to our Terms of Use. Any other use requires NPR's prior permission. Visit our permissions page for further information.

NPR transcripts are created on a rush deadline by a contractor for NPR, and accuracy and availability may vary. This text may not be in its final form and may be updated or revised in the future. Please be aware that the authoritative record of NPR's programming is the audio.

Service Project

(Paul/Joseph) Many people do not know what a rainwater catchment system is or what it is used for. We set out to educate the public by giving a demonstration of how to set up a rainwater catchment system. We built a rainwater catchment apparatus with a food barrel and necessary attachments and gave a demonstration in Haycock Township to the local residents of how to build their own rain barrel. This is in addition to giving the attendees a basic context for the need for rainwater harvesting, plus explaining the need for organic gardening and by extension composting. Definitions, examples of past historical events, and Question/Answer sessions will help everyone attending to gain a better understanding of how and more importantly why in today's world such systems and modes of thinking are vital to our survival as a species.

▪<http://haycockwildlifehabitat.wordpress.com/>

Rain Barrel Workshop. Come Sat July 30 @ 11am to St. Paul's Evangelical Lutheran Church, 837 Old Bethlehem Road, Haycock Township; (across from the Haycock Fire Station) Quakertown PA 18951. We will not be providing rain barrels, but we will show you how to make and install one, or install a commercially made rain barrel. We would also be happy to help you install one at your residence on Sat afternoon that you've purchased before Sat afternoon from a local vender (see the rain barrel options below that can be obtained locally).

We (myself – Julie and 2 of my Rutgers U student's Joseph Todd and Paul Redpath-Perez) plan to also discuss the benefits of organic community gardening, composting and rain water catchment systems (rain barrels).

Any questions? Contact me (julie) 610 847-2411. Leave a message with your phone number if no one picks up, or by email goinggreenpa@yahoo.com

References

Compost

<http://www.epa.gov/osw/conserve/materials/organics/food/fd-gener.htm>

<http://www.thefrugalgirl.com/2008/12/easy-composting/>

<http://www.yougrowgirl.com/2004/05/08/urban-composting/>

<http://www.intervalecompost.net/>

http://www.amazon.com/Humanure-Handbook-Guide-Composting-Manure/dp/0964425831/ref=sr_1_1?ie=UTF8&qid=1312255131&sr=8-1

http://www.amazon.com/Holy-Shit-Managing-Manure-Mankind/dp/1603582517/ref=sr_1_2?ie=UTF8&qid=1312255131&sr=8-2

Rainwater Harvesting

<http://www.harvesth2o.com/>

<http://www.grownyc.org/files/osg/RWH.how.to.pdf>

Food Production/ Misc.

<http://www.growingpower.org/index.htm>

<http://www.state.nj.us/dep/fgw/fishing.htm>

<http://www.pedalpeople.com/>

<http://pedaltopetal.blogspot.com/>

<http://maps.google.com/maps?q=supermarkets+new+brunswick,+nj&ll=40.48593,-74.451728&spn=0.024708,0.066047&oe=utf-8&client=firefox-a&fb=1&gl=us&t=h&z=15>

<http://www.nytimes.com/2008/08/06/dining/06local.html?adxnnl=1&pagewanted=2&adxnnlx=1311022078-GJ0zsfLqR5jDzP93GehNZg>

Editorials

(Paul) Comfort in Eating Your Own Home Grown Food Backyard vegetable gardens are a great alternative for those who want tasty food free of chemicals. Produce purchased from the local grocery store frequently comes from large-scale crop producers that may use fertilizers and

herbicides, and that harvest the food before it is ripe so that it can be transported long distances with a longer shelf life. Getting produce from your local farmer or plucking it out of your own garden can be very satisfying, cost effective and tasty. To learn more about how to start your own backyard garden, please come to our free backyard garden and rain barrel workshop, sponsored by the Haycock Wildlife Habitat Team and Rutgers University on Sat July 30, 11 am at St. Paul's Evangelical Lutheran Church, 837 Old Bethlehem Road, Haycock Township; Quakertown PA 18951. For more information, go to www.haycockwildlifehabitat.wordpress.com.

(Joseph) Why organic gardening?

As temperatures and severity of storms climb into record breaking numbers in 2011, it seems like a moment of quiet reflection is needed. So while sitting and pondering our global nations ills: oil spills, resource wars, biodiversity loss, climate change, etc. one wonders what exactly can be done. The problems are seemingly overwhelming and infinitely complex in their size and scope, yet I feel they can be simplified into three primary issues. Pollution, the cutting down of the worlds forests, and loss of topsoil.

How can I make such simplified and bold claims? Empirical science has pointed us to many of these conclusions. Biology and the life systems on this planet have the remarkable capacity to capture, sequester, and break down pollutants. Fungi and by extension their "flowers' mushrooms have been shown to break down multitudes of petrolatum based pollutants. Many plants and flowers actively accumulate heavy metals and dangerous contaminants in degraded, polluted soils. Even simple creatures such as mollusks and oysters act as incredible water filters.

So why care about the soil, forests, and furthermore ecosystem health in general? It's due to the fact that these systems, when functioning and in place give us true health and true wealth in abundance. Deforestation is a major issue we face in the presence of global climate change considering the worlds forests act as the world's primary energy transducer and climate stabilizers. Soil comes into the equation by being the groundwork, literally and metaphorically, of creating a forest and in general healthy functioning ecosystems. In recent years it's been estimated that the world lost roughly 83,000,000,000 tons of top soil. That's 166 TRILLION pounds per year. That's a lot of dirt. This is vital considering soil is the most diverse ecosystem on the planet.

Now that we've zoomed in on the issues and why they're relevant, how does this concern an average citizen? What can one person do to make a difference? One amazing answer lies in the garden. Whether creating a flower garden to mend fragmented wildlife corridors for insects and birds or growing a small plot of edible fruits, flowers, and veggies to help bring down grocery bills in a time with increasing food security issues, the answers remain clear. We need to be stewards of our soil to assist in the healing of our planet and everyone has the power to do this. This simplification of grandiose problems works when you consider other solutions to these

issues fall painstakingly short as second generation problems. CO2 sequestration, recycling, solar panels, wind farms, hybrid/electric cars, and biofuels become irrelevant if we don't address soil loss with the mending and tending to of the terrestrial base for life.

This simple act of creating an organic garden or green space is such an empowering and hopeful message to everyone. The techniques are there, the information is there, and now more so than ever the willingness to contribute is building a critical mass. People have the power to greatly shift the course of their own lives and future generations of lives to come. Many methods can be employed in this act of, as the great thinker, engineer, and designer Buckminster Fuller said, calling ourselves 'trim-tab' (the small rudder of a ship which dictates the entire direction of its course.) What elements are needed to grow a beautiful thriving organic garden? Healthy soil and water.

Composting is an amazing technique to heal damaged landscapes and create healthy soil in which all life can grow. It also mitigates our societies currently horrendous and ever growing waste-stream by taking organic matter that otherwise may have combined with other toxins in a landfills and allocates it as nature intended and feeds microorganisms, which in turn feed plants, which feed us. Food scrapes, dead grass clippings, leaf litter, newspapers, cardboard, and the list goes on as to what can be used to create future soil.

The second element, which is the origin of life according to modern scientific consensus, water is vital. 60-65% of the Earth's surface is water, only 3% of that is freshwater that we can drink and 2+% of that is trapped in the soil or for now in the ice caps. Needless to say fresh water is a valuable commodity. Yet current infrastructural systems in place are harvesting water from the ground at dangerous rates to be used in polluting processes such as industrial cooling which in turn returns the water to the ground polluted which requires we have polluting plants that clean the water that we originally polluted. How convoluted. So how do we cut such illogical systems off at their inception? Rainwater harvesting. This bioregion of the North East United States receives abundant rainfall and with many structures and surfaces this rainfall runs off of capturing and dispersing it through as many biological systems as possible, such as a garden, would be extremely useful. Many folk are on the forefront of rainwater harvesting with very cheap, low-tech solutions such as altering gutter systems to drain into gardens. Or even capturing the rainwater in cisterns ranging from 12,000 gallon ferrocement behemoths to simple 55 gallon converted food grade barrels. The options are limitless.

Currently Paul Redpath and myself (Joseph Todd) are going to be giving a discussion about all of these topics previously discussed as well as giving a hands on demonstration on rain barrel installation, composting, and organic gardening techniques through Rutgers University on Sat July 30, 11 am at the Fellowship Hall of St. Paul's Evangelical Lutheran Church, 837 Old Bethlehem Road, Haycock Township; (across from the Haycock Fire Station) Quakertown PA 18951. Come out and join the discussion and help us all become the trim-tabs so greatly needed in our lives and the lives of generations to come!



Install screen: If using a screw top barrel, simply unscrew the lid, have a helper hold a 2 ft x 2 ft piece of fiberglass window screen over top of the barrel and pull taught. Then screw the lid down on top of the screen. Trim excess screen as desired.

If using a basket to insert into the top of the closed top barrel, simply cover the entire basket with a sheet of fiber-glass window screen large enough to allow it to be tied at bottom, and seat the basket in the inlet opening.



Congratulations! The rain barrel is done.



For more information, contact:
Christopher C. Obropta, Ph.D., P.E.
 Extension Specialist in Water Resources
 (732) 932-9800, ext. 6209
obropta@envsci.rutgers.edu

Amy Boyajian, Program Associate
 (732) 932-9800, ext. 6164
boyajian@envsci.rutgers.edu

Your Cooperative Extension County Office by visiting/calling:
<http://njaes.rutgers.edu/county/>
 (732) 932-5000



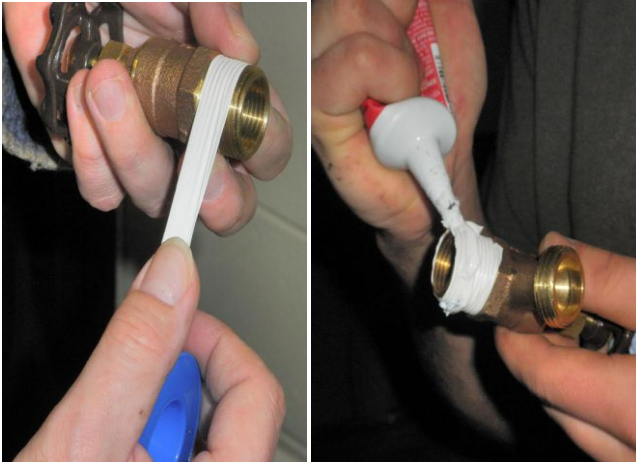
How to make a Rain Barrel



Inlet: Use a jig saw to cut an 8-inch diameter hole in top of barrel. Or, if using a pond basket, colander, or other device for the inlet, cut the opening to fit the device without gaps to avoid allowing in mosquitoes.



Faucet: For a screw top barrel, use the drill and one inch hole saw to drill a hole about six inches up from the bottom. If using a closed top barrel, the length of your reach inside the barrel to where you can screw on the lock nut will determine how far down the hole should be drilled. Avoid drilling on a seam, which will cause the barrel to crack and leak.



Wrap two thirds of the faucet threads with two layers of the thread seal tape. Leave the bottom third of the threads uncovered so it will be easier to start threading into the barrel. Apply a layer of sealant over top of the tape and threads. Use latex-free gloves when using silicone sealant (caulk).



First cover half the threads and around the barrel wall with sealant, then screw the locknut on and tighten down using the groove joint pliers.



Wrap thread tape around two thirds of the pipe thread side of the garden hose adaptor. The pipe threads are finer than the hose threads. Leave the bottom third of the threads uncovered, similar to the way the faucet was done.



Cover the threads and tape with a layer of sealant. The overflow fitting threads are slightly larger in diameter than the faucet threads, so once you start threading into the barrel by hand, you will quickly need to use an adjustable wrench to tighten the fitting.

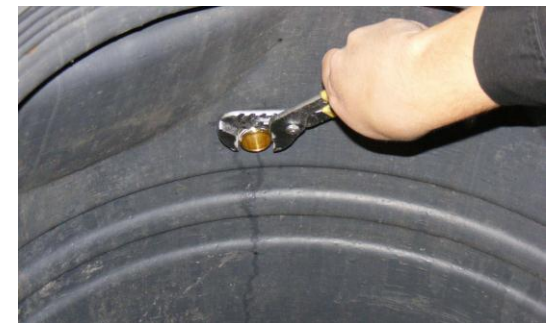


Line-up the threaded portion of the faucet with the hole in the barrel, and applying pressure, screw in the faucet. The sealant will pile up behind the faucet as you screw it in, filling in any small cracks.



Smooth the excess sealant around the base of the faucet.

Overflow: Decide which side you want to locate your overflow; right side, left side, or facing front. Avoid having the overflow face toward your house. Using the one-inch hole saw, drill a one inch hole about four inches from the barrel top.



Thread the locknut to the inside threads of the overflow.