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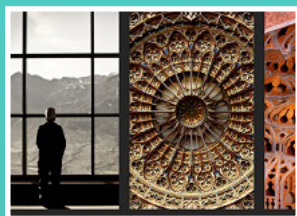
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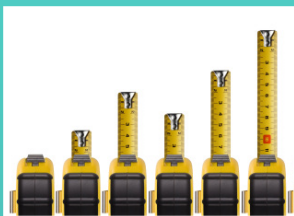
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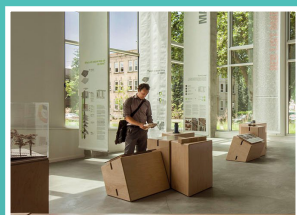
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# Enjoying Your Backyard Sustainably

Backyard Patio  
Sustainable Fencing  
Pool Maintenance  
Solar Pool Heaters & Covers

While enjoying a backyard barbeque, pool party, or just sitting and relaxing on the deck, you probably aren't considering the environmental impact of your outdoor structures. Most homeowners understand that plants and sprinkler systems directly impact the environment, but they overlook other elements, such as the materials used to construct decks, patios, pools and pool covers, and fencing.

In the past, patios were made with non-permeable materials, such as concrete, that often allow uncontrolled water runoff into the yard and stormwater drain system. This runoff is mostly wasted, since it repeatedly overwaters or erodes certain areas or simply goes into the drainage system.

Pools are also a tremendous source of wasted water and energy. As much as 3,000 gallons of water a month can evaporate from an uncovered pool. Pool covers can prevent most evaporation, and solar pool covers can help maintain pool temperature by absorbing the sun's heat. Traditional pool heaters use large amounts of energy, whereas installing a solar water heater can significantly lower energy usage.

In addition, decks and fences were previously, made of cedar and redwood, which, although renewable resources, are more expensive in the long term. After all, it costs a lot to harvest trees, process the wood, and transport the materials. Modern eco-friendly decks and fences are frequently constructed using composite boards, made of recycled plastic and wood chips, which require less energy to process. Composite materials also have a longer lifespan than lumber.

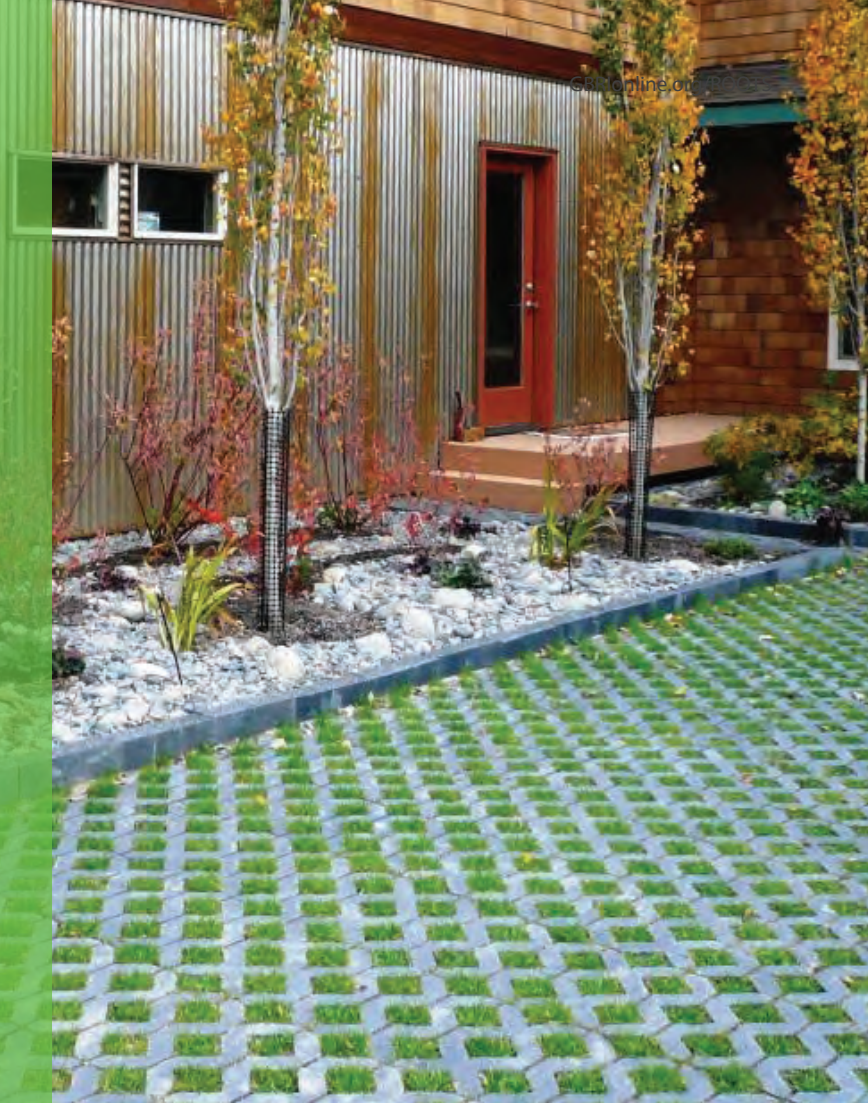
Whether you're remodeling your backyard or designing a new one, you'll find more enjoyment and peace of mind if you know you've made the right environmental choices in the process.



# Backyard Patio

## What is it?

A backyard patio is a flat surface situated on the ground that may or may not be attached to the house. Unfortunately, most patios have traditionally been made out of non-permeable materials, including concrete, asphalt, or solid cement. Using permeable materials for patios makes better environmental sense. "Green" patios are built from eco-safe materials that require less use of natural resources during manufacturing and that allow rainwater to infiltrate the ground. Hard surface patios can be constructed from recycled rubber and plastic, which can be molded to look like bricks or paving stones. Other environmentally friendly materials include open cell brick or cement pavers, various types of flat or loose stone, and composite materials made to look like wood. You might also consider reclaimed construction materials. All materials require energy and water to manufacture and deliver, but using salvaged materials is a greener option than buying new.



## Why do it?

### Environmental Qualities

- ✓ Reduces stormwater runoff so groundwater is recharged
- ✓ Lowers risk of property erosion due to stormwater runoff
- ✓ Reduces heat island effect (heat absorption from the sun)
- ✓ Significantly reduces toxins and pollutants found in traditional materials like asphalt or concrete

### Pros:

- ✓ Improves landscaping soil moisture by allowing slow water soaking (infiltration)
- ✓ Reduces patio contribution to property flooding
- ✓ Toxin exposure is reduced for vegetation and animals
- ✓ Eco-friendly materials are durable and easy to maintain

### Cons:

- ✓ Replacing an existing patio can be laborious
- ✓ Open cell pavers and brick, molded pavers and engineered materials usually cost more per square foot than concrete
- ✓ Even open cell concrete or cement pavers will retain heat

## Maintenance:

Patio maintenance is simple. Using all-natural cleaners, the patio can be cleaned twice a year without harming native groundcover that grows in between pavers or along pathways. Sweep pavers rather than washing them to conserve water. If a piece of the material breaks, like a paver stone or molded plastic paver, it can

be replaced fairly easily. An environmentally friendly weed killer can be used to keep patios weed-free, or weeds can be pulled up by hand. If mold, mildew, or moss grows, the patio can safely be cleaned by hand, scrubbing the patio with an eco-friendly solution of ½ cup vinegar and ½ cup borax mixed in warm water.

## Timeline:

You can install the patio yourself in 2 days. A professional landscaper with equipment and crew can do it in 1 day.

## Steps:

1. Measure and mark the area where the patio will be installed.
2. Dig out the area 6-8 inches deep. Make sure you don't disturb underground water or electrical lines.
3. Lay down landscape fabric.
4. Line the area with 4-6 inches of gravel and compact with a ground compactor (can be rented).
5. Add 1 inch of fine sand over the gravel; rake smooth and compact (use a level).
6. If using loose gravel or decorative stone, edge the area with plastic edging or a natural material like brick on edge, turf edge, or wood. This will contain the material.
7. Lay the eco-pavers or loose stone, using a level periodically to make sure it is even. Note: pavers can be arranged in a design that leaves openings in the patio, which can be filled with decorative stone to increase permeability and add style.
8. Edge the pavers, if necessary, to prevent future spreading (can



1. use natural materials).
2. For pavers, fill cracks with sand or fill unpaved areas with stone (patios made of loose stone do not need sand).
3. Place a piece of cardboard under the compactor so patio material is not damaged, and compact again.
4. Fill in around the edge of the patio with soil and native vegetation.

## Cost Estimator:

The cost per square foot is \$2.50-\$5.00 depending on the materials used, plus labor if contractor installed.

## Quick Tips:

Use loose gravel or stone on pathways leading to and from the patio to minimize expense and increase landscape permeability.

Incorporate recycled and broken materials (i.e. bricks, bluestone, granite, cobblestone etc.) into pathways or as decorative additions to patio designs, or use them exclusively for the most inexpensive option.

Plant native, drought-resistant plants around the patio and along the walkways to further reduce stormwater runoff, increase evapotranspiration and lower potential heat gain.

## Project Rating Box

Difficulty:



Cost:



Maintenance:



Home Value:



Savings:





# Sustainable Fencing

## What is it?

Sustainable residential fencing can be made from either recycled or recyclable materials, including plastic, PVC, fiber cement, aluminum and composite. Fencing can also be made from recycled or reclaimed wood, or wood that has been certified by the Forest Stewardship Council (FSC) or a similar certification company. Certified wood is obtained and manufactured using sustainable practices that minimize environmental impact. Bamboo, which is a rapidly renewable resource, represents another option. After building the fence, it is recommended to use low VOC paints or stains, and to regularly maintain the fence so that it lasts as long as possible before needing replacement.



## Why do it?

### Environmental Qualities

- ✓ Fewer natural resources needed to create or replace fencing products
- ✓ Wood comes from managed sustainable forests
- ✓ Most material can be recycled or reused (exception is composites)
- ✓ Composite and plastic fencing do not need staining or painting, reducing chemical use
- ✓ Reduces landfill waste because materials are recyclable

### Pros:

- ✓ Easy maintenance requirements for most sustainable products
- ✓ Decreases carbon footprint
- ✓ Recycled plastic fencing is more durable than wood
- ✓ Plastic and metal fencing is insect-resistant and waterproof and will not split or warp

### Cons:

- ✓ May be expensive
- ✓ Some products must be special ordered
- ✓ Certain materials like bamboo are easily chipped and need regular maintenance.

## Maintenance:

Except for wood and bamboo, sustainable fencing materials are virtually maintenance-free, except for an occasional washing. Bamboo needs a clear sealer applied annually after the first couple of years. Wood must be painted or stained and a sealer applied, all of which must be refreshed every few years.

## Timeline:

A fence takes approximately 3-5 days to install.

## Steps:

1. Select a type of sustainable fencing material.
2. Determine the spacing for fence posts, which is usually 6-8 feet apart.
3. Dig holes deep enough so that 1/3 of each post can be buried (12 inches wide and 30 inches deep).
4. Lay a 6-inch layer of gravel in the holes.
5. Plastic and metal posts can be set in concrete, while wood posts are usually set with packed dirt (make sure posts are aligned before filling in hole).
6. Attach bottom and top rails to fence posts, if appropriate.
7. Install fencing pickets or panels.
8. Install gates.



## Cost Estimator:

The price of the fence depends on the type of materials. Wood:  
\$10-\$15 per foot  
Composite: \$20-\$25 per square foot  
Iron: \$21-\$27 per foot  
PVC fencing: \$15-\$18 per foot.  
Bamboo: \$4-\$5.

### Quick Tips:

- ✓ Be sure to locate the property line before installing a fence.
- ✓ Check for permit requirements before starting installation.
- ✓ Keep the bottom wood rail 2 inches off the ground to discourage decay.
- ✓ Consider yard maintenance requirements when setting posts and railings.

## Project Rating Box

Difficulty:			
Cost:			
Maintenance:			
Home Value:			
Savings:			





# Backyard Pool Maintenance

## What is it?

The chemicals typically used to clean pools or kill algae or other contaminants--such as chlorine, copper algaecide, and bromine--are harsh and harmful to the environment. According to the EPA, pool chemicals can become reactive and produce toxic vapors when improperly mixed. They are designed for use in large amounts of water, so a small amount of water creates health and environmental hazards. For instance, chlorine produces fumes through decomposition even without having been mixed with anything. Some of these chemicals will inevitably get into the environment during cleaning. These can harm groundwater, waterways and wildlife.

There are now several alternative methods available for pool cleaning that are safer for the environment and human health.

- ✓Ultraviolet or oxidation pool cleaners kill some pool contaminants by promoting ozone production in the water.

- ✓Ozone pool cleaners also destroy some contaminants

- ✓Salt water chlorinator systems use a chlorine generator to create natural chlorine from salt.

- ✓Ionization systems release small amounts of copper and silver to kill algae and bacteria.

- ✓Sonic wave systems issue sound waves that kill contaminants and algae.

- ✓Vinyl pool liners can be cleaned with organic, non-toxic cleaners like ascorbic acid, borax or dish soap.

Pool maintenance also includes choosing environmentally friendly covers, keeping water temperature as low as possible to reduce energy usage, and keeping the pool filter clean.

## Why do it?

### Environmental Qualities

- ✓ Fewer pool chemicals reach groundwater
- ✓ Fewer pool chemicals and empty containers go to landfills (chemicals can become unstable over time)
- ✓ Reduces air pollution from chemical fumes
- ✓ Keeping a pool covered reduces water needed to keep the pool full by 35-60%



- ✓ Keeping a pool covered prevents water heat loss, so pool heater can be turned down, saving energy use
- ✓ Using a solar reflective cover can reduce the amount of light reflected, which lowers the urban heat island effect

### Pros:

- ✓ Less exposure to toxic chemical fumes, reducing risk of respiratory illness
- ✓ Safer for human handling
- ✓ Lower energy bills
- ✓ Lower water bills
- ✓ Less ongoing maintenance time
- ✓ Less risk of damage to landscape vegetation

### Cons:

- ✓ Currently, alternative methods are still not as effective as chlorine, bromine, and copper algaecide for killing bacteria and algae
- ✓ Alternative pool cleaners require a high initial investment
- ✓ The salt in the salt water system can corrode metal and harm pool decking and surrounding plants
- ✓ Still need to supplement alternative pool cleaners with chlorine in most cases

### Maintenance:

All alternative pool cleaners, except for non-toxic cleaners applied by hand, require routine equipment maintenance. Also, the water composition must continue to be regularly tested to ensure that algae problems don't develop.

### Timeline:

Setting up alternative pool cleaning equipment may require professional instruction. However, once it is set up, there will



be less maintenance involved than if you were using traditional chemicals. Pool maintenance will require approximately 15 minutes per day to check equipment and test water. Once a week, you should clean the pool filter and vacuum leaves and sediment.

## Steps:

1. Research each type of eco-friendly pool cleaner system
2. and select the one that will best provide the desired service level based on your budget and time schedule for pool maintenance.
3. Install the alternative equipment.
4. Establish a routine maintenance schedule using green practices.

## Cost Estimator:

Alternative pool cleaners can be expensive, but the cost can be recovered over time because fewer chemicals are purchased. The average pool maintenance cost is \$800-\$1,000 annually plus the additional \$100 per month energy expense. Environmentally sound pool maintenance practices can reduce both of these expenses.

## Quick Tips:

- ✓ If using a professional pool cleaning service, choose one that follows environmentally sound practices, such as safe chemical and chemical container disposal, plastic recycling, and water recycling during cleaning.
- ✓ Plant native plants and shrubs around the pool to create a windbreak so wind has less ability to promote evaporation.

## Project Rating Box

Difficulty:



Cost:



Maintenance:



Home Value:



Savings:

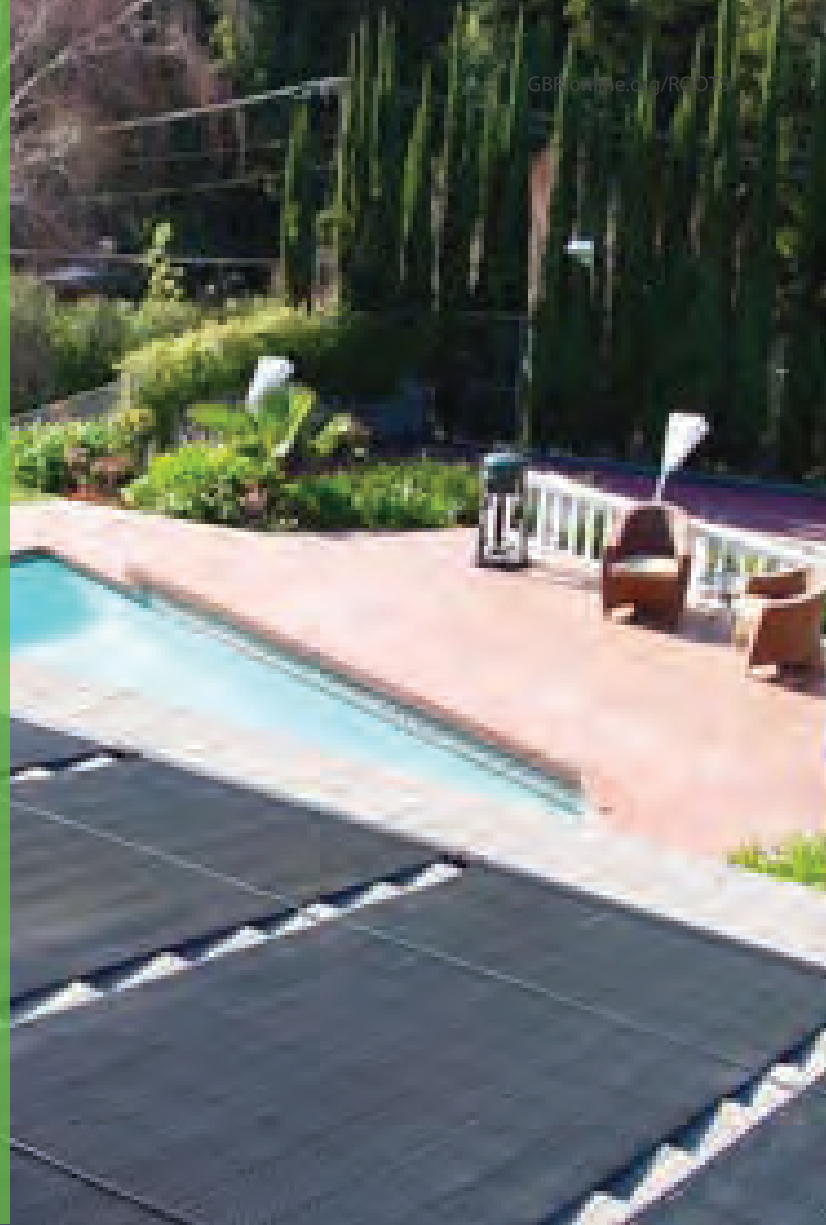


# Solar Pool Heaters and Covers

## What is it?

Using the sun's energy for heating pool water makes perfect environmental sense. Pool water absorbs between 75%-85% of the solar energy hitting its surface. However, as much as 70% of energy loss from pool water is due to evaporation. Solar water heaters work by pumping diverted, filtered water through a solar collector, where the water is heated by the sun. The solar-heated water is then returned to the pool.

Covering the pool with a solar cover is an inexpensive method to prevent evaporation and loss of energy. The heavy duty plastic solar cover is made with bubble air pockets and UV inhibitors. The air in the bubbles heats up when the sun is shining, and the cover also acts like an insulating blanket, preventing heat loss in the water. However, solar covers can only be used when it is swimming weather.



## Why do it?

### Environmental Qualities

- ✓ Reduces energy use
- ✓ Reduces greenhouse emissions
- ✓ Pool covers reduce the amount of new water needed to replace evaporated water
- ✓ Fewer chemicals evaporate into the air

### Pros:

- ✓ Reduces water bills
- ✓ Reduces energy bills
- ✓ Water is kept within a comfortable range for swimming
- ✓ Pool cover reduces expenses for chemicals because of less water evaporation
- ✓ Pool cover keeps the pool cleaner, reducing maintenance effort and expense
- ✓ Extends swimming season

### Cons:

- ✓ Solar water heaters only work when the sun is out, while solar covers will continue to prevent evaporation but will not help heat water on cloudy days

- ✓ Solar heaters require a roof installation or panels installed on supports
- ✓ Solar heaters heat up water by no more than 15°F, which may not be enough in cooler months
- ✓ Solar water heaters should be professionally installed, unless you're experienced in plumbing and electrical wiring
- ✓ Opaque solar covers will reduce the amount of solar energy absorbed by the water
- ✓ The solar cover must be taken on and off manually unless an all automatic or semi-automatic style is purchased
- ✓ Solar covers can increase liability unless tracks are installed so that no one can get under the cover when it is closed.

### Maintenance:

Solar water heaters and covers require very little maintenance.. The solar cover should be stored on a reel when not in use. To remove debris, mold, and algae, it should be cleaned periodically with an organic or environmentally safe disinfectant, cleaner, and deodorizer.. The solar water heater needs almost no maintenance, but the pool water must be chemically balanced and the water filtering system must be working properly.



## Timeline:

A solar heating system can be installed in 6 hours by a professional. A skilled homeowner may need up to 2 days. Solar covers can be put in place in 2 hours or less, unless tracks are installed. If tracks are installed, it will take a full day.

## Steps:

1. A pool cover can simply be pulled over the pool
2. To install a solar heating system using a sun sensor:
  1. Install solar collectors on the roof with controller
  2. Install motorized valves that work automatically to divert pool water to the solar collectors
  3. Install piping from solar collectors to pool
  4. Install filtering system in water pipes
  5. Connect the pump between filter and pool.

## Quick Tips:

- ✓ If you use a transparent solar cover, the solar energy absorption reduction will be kept to a minimum at 5%-15%.
- ✓ Replace the cover as soon as you are done using the pool.
- ✓ Only glazed-glass solar heaters can be used in the winter.
- ✓ When the pool is winterized, the solar cover should be stored indoors.

## Cost Estimator:

An average solar water heater costs \$3,000-\$4,000, while more expensive glazed-glass systems can cost up to \$8,000. A manual solar cover costs approximately \$300, while automatic systems cost more than \$1,000.

### Project Rating Box

Difficulty:			
Cost:			
Maintenance:			
Home Value:			
Savings:			



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# CHEMICAL MANAGEMENT

## Keeping Chemicals under Control

Composting  
Eco-Friendly Fertilizers & Pesticides  
Deicers  
Exterior Cleaning

According to the EPA, 67 million pounds of toxic chemicals in the form of pesticides, herbicides, and fertilizers are used each year on plants and lawns to create beautiful, green, insect-free yards and decks. The typical homeowner uses 10x more pesticides per acre than farmers, and applies harsh, toxic chemicals for deicing sidewalks and steps. But do they give any thought to where those chemicals actually end up or their impact on the environment?

Most homeowners would be shocked to learn of the harm these chemicals are doing to our land, water, and wildlife ecosystems. A staggering amount of pollution is finding its way into surface water and underground aquifers. First it leaches soil nutrients, then seeps into groundwater or washes off into lakes, streams, and rivers. From there it enters our food chain at the lowest levels and ultimately works its way into human consumption. However, there is an even greater, more immediate danger: family members, pets, and wildlife are exposed to these dangerous chemicals during and after application around the yard and home.

The good news is that these chemicals can be replaced by natural alternatives. Insect repellent plants, organic herbicides, and compost or other natural fertilizers, such as animal manure or worm castings, can help control weeds, insects, and provide nutrients. Chemicals used for de-icing can also be replaced with effective green alternatives while still protecting the family from icy walkways and driveways.

# Composting

## What is it?

Compost is a natural fertilizer made of decayed organic material, long utilized by home gardeners. The organic material can be anything that will decay or rot naturally, such as table scraps, leaves, grass clippings, garden plants, straw, pine needles, seaweed, wood ash, chicken manure, coffee grounds, black and white newspaper, cardboard, etc. After it is piled into a heap or placed in a compost bin, microscopic organisms already present in the material aid in the decaying process, further contributing to breakdown of the natural fertilizer once placed on the soil. Once it becomes a rich, crumbly humus, the compost is ready to be mixed into the soil.



## Why do it?

### Environmental Qualities

- ✓ Contains no synthetic chemicals
- ✓ Promotes moisture retention in soil, reducing water usage
- ✓ Reduces landfill waste materials

### Pros:

- ✓ Adds nutrients to the soil
- ✓ Lowers gardening expenses for fertilizers
- ✓ Improves soil, i.e. makes clay soil easier to work, helps sandy soils retain moisture, etc.
- ✓ Promotes healthy plant growth as microorganisms convert soil nutrients for better absorption by roots
- ✓ Endless supply of fertilizer can be created

### Cons:

- ✓ There may be foul odors the compost bin/pile is not covered
- ✓ In some cases, it may be necessary to supplement the compost with another fertilizer
- ✓ Compost may attract insects and rodents if not kept in an pest-proof bin

### Maintenance:

Simple to maintain, compost piles only need occasional introduction of new organic material and periodic turning. Turning prevents the material from compacting, which would slow the decaying process. It also adds important oxygen to the

pile. If the pile gets too wet, additional dry materials should be added. A compost pile should be at least 27-125 cubic feet to create the right conditions to produce the necessary heat for materials break down.

## Timeline:

If properly maintained, it can take as little as a few weeks up to 3 months for compost to be ready.

## Steps:

A compost pile can be created on bare earth or in an enclosed compost bin. Follow these steps to create a compost pile.

1. A bin can be made of an old barrel or even from used shipping pallets arranged in a "box" structure.
2. Lay a layer of straw several inches deep to contribute to aeration at the bottom of the pile and discourage compacting.
3. Alternate moist, "green" waste (lawn clippings, kitchen scraps) and dry, "brown" materials (twigs, leaves, manure). Make each layer about 3 inches thick.
4. Add a nitrogen-rich material like manure to promote speedier decay.
5. Water periodically if it does not rain, but only keep the pile moist, not wet.
6. Keep covered with black plastic sheeting or a piece of wood to retain heat and moisture.
7. Using a garden tool, turn the pile every 2-3 weeks to aerate (add oxygen to) it.
8. Once the material is crumbly, spread it like fertilizer.



## Cost Estimator:

A compost pile or heap can be created using materials readily available in most homes, so there is little to no expense., although manufactured bins can be as much as \$250.

### Quick Tips:

- ✓ Do not compost proteins such as fish, meat, or bone scraps because they will attract unwanted pests or animals.
- ✓ Avoid using non-organic vegetables or fruits, as they might have been sprayed with pesticides.
- ✓ Sawdust (for reducing odor) should be clean or chemical-free and used sparingly.
- ✓ Chop up large pieces of organic material to promote even rates of decay.
- ✓ Add grass clippings in thin layers between other materials to avoid matting.
- ✓ When turning, make sure all the materials are shifted, including bringing the center materials to the outside

## Project Rating Box

Difficulty:



Cost:



Maintenance:



Home Value:



Savings:



# Eco-Friendly Fertilizers & Pesticides

Cartoonist: Jody ROBERTS

## What is it?

Organic gardening utilizes non-toxic, natural fertilizers and pest-control methods.

Natural fertilizers break down in the soil easily and quickly, releasing essential nutrients required by plants for healthy growth. Common natural fertilizers include animal manure, worm castings, plant materials (like alfalfa and soybean meal), composted plant and animal materials, and as well as other minerals.

Biopesticides or biological pesticides are made from natural materials that come from plants and animals and might also contain some minerals. They include microbial pesticides made of microorganisms, plant pesticides manufactured from genetic material, and biochemical pesticides made from natural substances. Some organic gardeners use various mixtures of herbal or vegetable extracts (e.g., onion, garlic, cayenne pepper, etc.) mixed with dish soap and water to spray insect infestations.

Some plants naturally repel common insects, while adding color or interesting foliage to gardens. These include: borage, dahlias, four o'clocks, scented French and Mexican marigolds, nasturtiums, petunias, sunflowers, wormwood, rue, chrysanthemum, lavender, mint, sage, and thyme. These plants kill or repel cabbage and tomato worms, hornworms, nematodes, Japanese beetles, whiteflies, aphids, squash bugs, cucumber beetles, asparagus beetles, and leafhoppers. Care must be taken with the four o'clocks, though, since they can be toxic to humans and animals if ingested.

## Why do it?

### Environmental Qualities

- ✓ Less harmful to water and soil than conventional fertilizers and pesticides
- ✓ Pesticides only harm targeted organisms and not animals or beneficial insects
- ✓ Fertilizers return organic nutrients to the soil
- ✓ Fertilizers and pesticides reduce risk of soil nutrient leaching
- ✓ Fertilizer improves soil moisture retention and drainage

### Pros:

- ✓ Smaller amounts of biopesticides needed compared to conventional pesticides
- ✓ No dangerous chemicals, so safer for family and pets
- ✓ Easier to use because it is difficult to over-feed plants
- ✓ Fertilizer and pesticides have a long breakdown cycle
- ✓ Can supplement homemade compost
- ✓ Can produce higher quality soil and healthier plants over the long term
- ✓ Safe for use in vegetable gardens

### Cons:

- ✓ Might take longer to be effective compared to synthetic fertilizers and pesticides
- ✓ Requires more time and effort
- ✓ Organic supplies may cost more than conventional fertilizers and pesticides

### Maintenance:

Since organic fertilizers and pesticides contain no dangerous chemicals, you don't need elaborate safety clothing or breathing filters. The longest process is the initial soil rejuvenation, which requires mixing in compost material to ensure soil is not compacted and is aerated. Once the soil is healthy, fertilizing 4 times a year is usually enough. Pesticides can be applied as often as needed.

### Timeline:

If you fertilize your lawn and garden once each season, it will take approximately 4 to 6 hours annually (depending on size). Homemade compost increases time due to making the compost then adding and turning compost in the soil. Pesticides can be applied as frequently as needed.



## Steps:

1. Test soil pH to determine whether additional minerals are needed, and if so, which ones. The ideal reading is between 6.5 and 7.0.
2. Aerate compacted soil.
3. Mix in organic compost as needed to lighten or loosen soil.
4. Apply fertilizers and pesticides as needed, or according to directions if purchased.

## Cost Estimator:

A 40 lb. bag of manure costs \$1.50-\$4.00 and will cover approximately 3 square feet at 3 inches deep. A 1 cubic foot bag of compost ranges from \$2.50 (on sale) to around \$5.00 in most places. If you're not developing homemade compost, you can have compost delivered by the cubic yard or truckload, depending on needs and local availability. Prices can range from \$35 to \$70 or more per yard delivered. Be careful, though, to insist on organic (and ensure your definition matches theirs).

## Quick Tips:

- ✓ Use mineral fertilizers only after having the soil tested to avoid damaging the natural environment by applying too much or applying the wrong minerals.
- ✓ The key to successful use of organic fertilizers is to first build up the soil fertility.

## Project Rating Box

Difficulty:			
Cost:			
Maintenance:			
Home Value:			
Savings:			



# Deicers

## What is it?

A safety hazard is created when ice builds up on sidewalks, walkways, and driveways. In the past, rock salt (sodium chloride) has been the most common agent used to melt ice. However, salt can harm plants and pets, contaminate water, corrode metal and porous materials like brick and masonry, and damage concrete and asphalt. There are several green deicing options available to homeowners that are effective at melting ice. They include cat litter made from natural materials like corn fibers and baking soda; baking soda used alone; straw; gravel; wood ash; and wood chips, to name a few. There are also several commercial green deicers available that will not harm the environment. They include the newest deicer made from calcium magnesium acetate (acetic acid and limestone) and organic salt-free products.



## Why do it?

### Environmental Qualities

- ✓ Protects groundwater and waterways from salt contamination
- ✓ Protects vegetation from salt damage
- ✓ Protects aquatic wildlife
- ✓ Increases availability of water for plants (salt absorbs water)
- ✓ Prevents nitrification of ammonium in soil

### Pros:

- ✓ Protects driveways and sidewalks from salt damage
- ✓ Don't have to worry about salt corrosion on vehicles or porous materials
- ✓ Pets don't track calcium chloride into the house like salt
- ✓ Green deicers are safer for pets
- ✓ Protects landscaping plants and trees from salt damage
- ✓ Can be stored indefinitely

### Cons:

- ✓ Some natural deicers take longer to work and are not as effective as salt
- ✓ Newer commercial deicers can cost significantly more than rock salt
- ✓ Deicers are not intended to add traction, only to break the ice-to-surface bond

- ✓ Cat litter can get very mushy if it refreezes after initial deicing

### Maintenance:

Deicers are simply spread over ice when it forms in common use areas like driveways, sidewalks, and steps. The products are usually broadcast by hand or by using a shovel or spreader.

### Timeline:

It takes approximately 20-30 minutes to properly spread deicing material on the driveway and sidewalks.

### Steps:

1. If powdery or dry snow is removed quickly, deicer is not needed.
2. If snow is more than 1½ - 2 inches deep, shovel some of it first before spreading deicer.
3. Apply deicer as soon as wet snow begins falling so an ice barrier cannot form.
4. Freezing rain should be deiced quickly so the ice doesn't build up.
5. Deicers break the bond between ice and the hard surface, but don't melt the snow, so snow removal is still necessary.
6. Sweep up any deicing material remaining after snow and ice melts.



# Cost Estimator:

A 55 lb. bag of calcium magnesium acetate will cost under \$100.  
A 35 lb. bag of cat litter and other natural deicers will cost less than \$25.

## Quick Tips:

- ✓ Store all deicers in airtight containers.
- ✓ Pre-treating walkways and driveways with deicers will minimize ice formation.
- ✓ There is no need to overuse deicers because they are only meant to loosen the ice from the surface to make removal easier.
- ✓ Liquid deicers are best for preventing ice, while pellets or granules are good for application on the top of ice.

## Project Rating Box

Difficulty:			
Cost:			
Maintenance:			
Home Value:			
Savings:			



# Exterior Cleaning

## What is it?

The word “cleaning” evokes indoor housekeeping, but there is plenty of outdoor cleaning that also takes place. A typical house has lots of surfaces that need periodic cleaning, including roofs, siding, walkways, gutters, sidewalks, vinyl fencing, windows and outdoor furniture. Using typical, harsh cleaning solutions is damaging to the environment and to your health. Chemicals evaporate into the air and wash into the ground with water during cleaning. Two steps that can be taken to reduce the amount of chemicals added to the environment include using commercial biodegradable or organic cleaners or making your own cleaners using ordinary eco-friendly ingredients. For example, a simple and effective outdoor window cleaner can be made with 1 tablespoon of biodegradable liquid dish soap or 1 part vinegar added to warm water. A deck can be cleaned with 1 cup of non-toxic oxygen bleach mixed with 1 gallon of water.



## Why do it?

### Environmental Qualities

- ✓ Reduces air and ground pollution
- ✓ Protects wildlife from chemical toxins
- ✓ Using less water for cleaning inhibits chemicals like antifreeze from being washed into the landscape and eventually stormwater drains
- ✓ Protects reservoir levels by reducing water usage

### Pros:

- ✓ Landscaping trees, flowers, grass and bushes are not exposed to chemicals
- ✓ Saves the homeowner a significant amount of money on the purchase of cleaning products
- ✓ Convenient because cleaning solutions can be mixed as needed using household products
- ✓ Reduces water bills

### Cons:

- ✓ More time consuming to mix your own cleaning solutions
- ✓ Requires more physical labor as opposed to using power equipment
- ✓ May need to buy a few special items not commonly found in households, like Borax
- ✓ Might still need to periodically use stronger commercial phosphate-free or green solutions for heavy duty cleaning if home solutions are not effective.

### Maintenance:

Frequent outdoor cleaning is usually needed in the spring

when pollen is flying and in the summer when it is hot and humid. In damp climates or during rainy months, it is necessary to regularly clean mold, mildew and moss on roofs, siding and decks to prevent staining and material damage. In drier climates, less frequent cleaning is needed. Green cleaning can sometimes be more laborious because you will choose hand sweeping and scrubbing over using power equipment.

## Timeline:

Most exterior cleaning tasks can be completed in one day (8 hours). Cleaning siding or roofs may take two days, depending on the size of the area.

## Steps:

The following list gives you an idea of ways you can clean the exterior of your house and outdoor furniture without using harsh chemicals. Common substitutes for commercial cleaning solutions include white vinegar, Borax and warm water.

1. Pressure wash roofs using least amount of pressure possible and an environmentally friendly cleaning solution, or just water if mold, moss or mildew is not present
2. Driveways, sidewalks, walkways and patios should be cleaned by sweeping, instead of using water.
3. Siding can be cleaned with hot water and a scrub brush and then rinsed. If it is mildewed, spray the siding with a vinegar and water solution and then rinse.
4. Decks can be pressured wash with water only. If a deck has mold, mildew or stains, it may be necessary to use a commercial eco-friendly solution to get the deck clean. From that point on, you can use water and a pressure washer. A solution of ¼ cup white or distilled vinegar in one gallon of warm water can be



1. applied with a rag mop to clean the deck and inhibit mold, followed by a sparse washing to remove the vinegar.
2. Gutters can be cleaned by removing leaves and debris by hand and sweeping sediment and debris with whisk broom (or let rain wash sediment away if possible).
3. Outdoor furniture can be cleaned by using a spray made with 1 teaspoon of Borax, 1 teaspoon dish soap and 1 quart of warm water.




## Cost Estimator:

Using supplies found in the typical home keeps the cost of green cleaning to a minimum. A mixture of vinegar, Borax and water will cost only pennies per application.

## Quick Tips:

- ✓ Keeping gutters clean will help keep the outside of the house cleaner
- ✓ Gutter debris can be saved and used as compost
- ✓ Castile soaps (vegetable-based oil soap) are good to use on very dirty decks
- ✓ Sweeping decks, walkways and patios instead of using a hose and water is the most eco-friendly method.

## Project Rating Box

Difficulty:			
Cost:			
Maintenance:			
Home Value:			
Savings:			



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