



# Rockin E Gardening Handouts

Tips and Suggestions for 'Year-Round' Gardening

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## Diatomaceous Earth Uses



Diatomaceous Earth is a natural, organic insect killer. Diatomaceous Earth kills by physical action and not by chemical poisoning, so there is NO harm to animals or humans. The tiny hard and sharp diatoms scratch off the insect's waxy coating, causing it to dehydrate. DE is one of the few pesticides in the world classified as non-toxic. However, anything can be toxic if over used or misused.



Diatomaceous earth (DE) is the remains of microscopic one-celled plants (phytoplankton) called diatoms that lived in the oceans and lakes that once covered the western part of the US, and in other parts of the world. These deposits are mined from underwater beds, or from ancient dried lake bottoms, that are thousands of years old. This means that diatomaceous earth has an unlimited shelf life provided you keep it dry. **Only food grade diatomaceous earth is safe for humans and pets. Food Grade Diatomaceous Earth is different than Diatomaceous Earth made for filters and pools.**

### Food Grade vs Pool Grade Diatomaceous Earth (DE)

*There is a Difference! Non-food-grade diatomaceous earth is dangerous and should be avoided in gardens.*



Food grade diatomaceous earth is actually the fossilized remains of microscopic organisms that lived eons ago. It comes from a fresh water algae called a Diatom. These one celled algae had a curious habit of forming a silica exoskeleton. These exoskeletons piled on top of one another for so many eons that a type of sedimentary rock called Diatomite was formed. Diatomite can be crushed and crumbled into very small particles, creating a very fine powder composed of amorphous silica. This powder is called food grade diatomaceous earth, or fossil shell flour.

When this product is manufactured for use in filters and pools, it is chemically treated and heated. It becomes crystalline silica, which is harmful to humans and pets.

Food grade diatomaceous earth has some unique properties. At the microscopic level DE resembles a hollowed out, spiny barrel, made of silica mesh. There will be millions of these little cylinders in each teaspoon of food grade diatomaceous earth. Food grade diatomaceous earth is also very porous and it will absorb liquid substances quite rapidly. Even though it is an excellent pesticide, it is not a poison. It is an inert substance that is not toxic in any way to humans or pets.

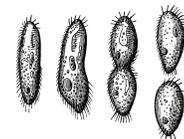
### Diatomaceous Earth Insecticidal Uses

Food grade diatomaceous earth is the most perfect natural insecticide because it is completely non toxic to humans and pets, but is deadly to any insect it comes into contact with. Food grade Diatomaceous Earth will not harm earthworms or most beneficial soil microorganisms. However, it does not distinguish between good and bad bugs.



When diatomaceous earth comes in contact with an insect, it sticks to the body and makes holes through the waxy

coating that insects have. This causes the insect to lose body fluids and die. The diatomaceous earth hastens this death along by absorbing the fluids quickly. Simply said, 'DE kills insects by drying them up'.



You will see how drying DE is if you handle it with bare hands. Insects will NEVER become immune to the effects of diatomaceous earth.

Keep in mind that diatomaceous earth is deadly to all insects, even the beneficial ones. If diatomaceous earth gets on an insect, of any type, it will die: period.

DE has no insect killing power while it is wet. However, as soon as it dries out, DE continues to work, unless it is washed into the soil where it cannot come in contact with the insects.

You can use Diatomaceous Earth inside your home, greenhouse, or outdoors on fruits, vegetables, flowers, grains and grass. You can apply it up to, and including the day of harvest.

**Remember:** Diatomaceous earth will kill every insect that comes into contact with, including beneficial ones, so keep it away from the honeybees, ladybugs, preying mantis, and from your ant farm. Insects will never get immune to diatomaceous earth, and there is no toxic residue.



It kills, ants, ticks, fleas, aphids, silverfish, cockroaches, bed bugs, spiders, carpet beetles, tomato hornworm, house flies, fly larvae, fruit flies, red spider mites, earwigs, codling moth, twig borer, thrips, bedbugs, corn earworm, cucumber beetles, corn borer, sting bugs, squash vine borers and many more. It will kill slugs and snails too.

You can even spray wasp nests at night with DE and all of them will be dead by morning; they will fall off the nest overnight.

Diatomaceous Earth will not harm earthworms or most beneficial soil microorganisms. Earthworm farmers use it to treat their worm beds for parasites, and for fungus gnat larva.

Earth worms are structurally different from insects. They can actually digest particles of DE. These particles are then eliminated in their castings.

## Diatomaceous Earth Pet & Human Uses

Food grade Diatomaceous earth has a host of healthy benefits, that many people are just becoming aware of. Food Grade Diatomaceous Earth is becoming a major health supplement, with many people reporting a large drop in their cholesterol, and a reduction of their blood pressure.

When people (or pets) ingest food grade earth, it acts like millions of microscopic scrubbing sponges. As it travels through the body it scrubs the walls of the intestines and stomach, absorbs heavy metals, attracts and absorbs all manner of fungi, viruses, bacteria, toxins, drug residues, and the like.

This material is absorbed or becomes stuck on the diatomaceous earth and passes out of the body. After using food grade diatomaceous earth for a few months, the sides of your intestines will be clean instead of coated with muck. People report more energy, better sleep, healthier skin and nails, better more regular bowel movements, relief from menopause symptoms, and a host of other benefits.

As food grade diatomaceous earth passes through the body a small bit of it is absorbed into the blood as silica where it helps to destroy bad fats. It is almost as if it absorbs cholesterol. Many people see a 30 to 50 point drop in their cholesterol level after starting to use food grade diatomaceous earth.

Food grade diatomaceous earth also kills many parasites in your body it comes in contact with. The spines of DE cause it to dig into the body of the parasite, then the DE sucks the moisture out, and the parasite dies. This is why it is so safe to use to worm pets with. Sprinkle a little on your pet's food each day, it will kill most all internal parasites with little or no side effects.

## Where does DE come from?

Diatomaceous earth is mined, milled, and processed into a myriad of types, for a large variety of

uses. Filtering and filler are two main uses, but diatomaceous earth also ends up in paints, cosmetics, drugs, chemical insecticides, etc. Because the milling produces different sized and shaped particles, it is important not to use the filtering type for agricultural purposes.

Pool filter grade diatomaceous earth has been heated and chemically treated. It will poison an animal or human who ingests it, so it is always of utmost importance to only obtain food grade diatomaceous earth to use in and around your household.

Food grade diatomaceous earth is EPA approved to be mixed with grains to control mealworms and other pests. It has been exempted from tolerance requirements as an inert, or inactive ingredient in chemical pesticides.

Diatomaceous earth is EPA approved for use against indoor and outdoor crawling insects.

Diatomaceous earth is USDA approved as an anti-caking agent for animal feed.

Diatomaceous earth is FDA approved for both internal and external use, and has a rating of Food Chemical Codex Grade.

## DE is Good for People Too

Many people regularly ingest diatomaceous earth for its health benefits. It is chalky and not very yummy, but DE doesn't taste horrible. It is easy to mix into items like drinks and foods so you won't even notice it's there. As always, make sure you are using food-grade DE.

***Talk to your doctor or health specialist before eating or consuming diatomaceous earth.***

## Quick Facts

As long as DE stays dry, it is effective. Since DE is highly porous, exposure to rain and sprinklers often requires reapplication. Once DE dries out it begins to work again, but it may not be in the correct location. It may have been washed into the soil where it cannot come into contact with the insects you are trying to control.

Diatomaceous earth is a good blood clotter. If you cut yourself and don't stop bleeding right away, dab your wound with a little DE and it will clot right up.

DE has a soft, silky texture like talcum powder, but unlike talcum powder it makes your hands dry and rough when you touch it.

Diatomaceous earth is an ingredient in dynamite. It prevents the nitroglycerin from exploding before it should.

## ***Are there any safety concerns with DE?***

Yes, you must wear a dust mask when applying it as it can irritate the mucous membranes in the nose and mouth. Once the DE dust has settled it won't bother you.

Also, DO NOT get diatomaceous earth



in your eyes. DE is drying to the eyes, so do NOT put it out when you or your pets are down wind of it. DE is drying to your skin, hands, and feet, just as it can be to your pets.



**What is the difference between food and feed grade diatomaceous earth?**

Although these two types are very similar there is one very important distinction between them. Food Grade DE must meet certain specifications regarding heavy metal content. To be considered Food Grade, the Diatomaceous Earth must not contain more than 10mg/kg of arsenic and no more than 10mg/kg of lead.

**What is the difference between food grade and pool grade Diatomaceous Earth?**

The difference here lies with the way that each type of DE is treated. Pool grade DE is calcined, meaning that is treated with very high heat. This turns the silicon dioxide that is present in the DE into crystalline silica. Pool grade diatomaceous earth has more than 1 percent 1% (in fact, it can it can range from 60-70 percent) crystalline silica. Food Grade Diatomaceous Earth, on the other hand, has less than 1% crystalline silica and is not calcined.



**Can pool grade DE be used for anything other than filtration?**

Because of its high crystalline silica content, pool grade diatomaceous earth should not be used for anything other than filtration.



**What's the difference between gray and white diatomaceous earth?**

DE varies in color due to the fact that each deposit has its own unique mineral content. Some brands of Diatomaceous Earth is gray because it contains montmorillonite, a clay known for its absorbent qualities.

**Some of the Many of Uses of DE**

Diatomaceous earth has an incredible number of uses. It's a popular and safe bug killer; a great way to dry out areas that are chronically damp; ingested, it is considered a health aid; and is one of the most common ingredients in swimming pool filters. Some of the other many uses of DE are listed here, though this list is not complete.

- Abrasive in Toothpaste
- Dynamite Base
- Safe Garden Insecticide
- Garden Enrichment Supplement
- Cake Mix Ingredient
- Supplement in Livestock Feed
- Ingredient for Odor and Moisture Control in Horse Bedding, Chicken Litter, etc.
- Swimming Pool Filter Material
- Abrasive in Metal Polish
- Cat Litter Ingredient



- Animal Wormer
- Colon Cleanser
- Bonsai Soil Additive
- Human Food Additive
- Human Health Supplement
- Protectant for Stored Grains
- Activator in blood clotting studies
- Safe Pet Insecticide
- Stain Remover



**How Much DE to Add to Your Pet's Feed?**

The amount of DE to add to your pet's food varies depending on who you're asking. Most recommend it to be mixed with animal feed at a rate not to exceed 2 percent of the total dry weight of the rations.

**Talk to your Veterinarian before adding diatomaceous earth to your pet's diet.**

Unless you use enormous amounts, you can't overdose on it, and even a little will help. Just make sure to only use food grade diatomaceous earth. The kind used in swimming pool filters is very dangerous and should not be ingested.



You can just add some diatomaceous earth to whatever food you are feeding your pets. Some animals don't like eating it dry in their regular food, so you can try adding a small amount to their treats.

**Food-Grade vs Treated Diatomaceous Earth**

**Always check the labels on your diatomaceous earth to ensure it is the appropriate variety before using it either in your pool filter, or especially in giving it to your animals, since you can't tell the difference between the two by the naked eye.**



**Other Resources**

- <http://www.biocompletenaturaldiet.com/viewProd.php?ProdID=48>
- [http://cals.arizona.edu/urbanipm/pest\\_press/2006/september.pdf](http://cals.arizona.edu/urbanipm/pest_press/2006/september.pdf)
- <http://npic.orst.edu/factsheets/degen.html>
- <http://diatomaceous.org/>



