

## **Organics...The Chemical Spray Alternative**

By Charles Shaner – Consulting Rosarian – Staunton, Va.

If you are looking for sprays that are friendlier with the environment, you may want to try organic alternatives. There are many alternatives on the market and several you can mix up yourself. They are comprised of common organic materials, soaps and occasionally other environmentally friendly materials. If you are not inclined to “mix up a batch” of your own, many are readily available at most garden supply stores or garden centers.

Readily available on the market you will find items such as **Sun Spray Oil**. Oils kill insects by smothering. If they cannot breathe, they cannot live. Sun Spray Oil also has some effect on mildew and blackspot in that the spores cannot germinate in the oil. Sun Spray may be found most places garden supplies are sold and may be found under several different names. Just look or ask for horticultural oil.

**Neem Oil** – Works much the same way as Sun Spray Oil but has some different qualities. Neem Oil is derived from the Neem tree. The Neem tree has been around for thousands of years and is still killing insects. It has some effect on powdery mildew and blackspot but seems to fade in the fall.

**Hot Pepper Wax** – Hot Pepper Wax is made from hot peppers, the kind you eat. Hot Pepper Wax or spray does not kill the insects but rather repels them. I tried the Hot Pepper Wax a few years ago on my roses. When finished, I had a little left in my sprayer and I noticed my potatoes were covered with potato bugs. I thought “what the heck, it’s worth a try”. So down the row of potatoes I went. The next day, my cousin that lives next door, was standing in my yard talking and noticed there weren’t any potato bugs on my potatoes. He asked what I used (potato bugs are almost impossible to kill because they have become immune to almost every insecticide)? I said “Hot Pepper Wax”. He asked if it killed them. I replied “no, it repels them”. He said “no wonder I have so many and you don’t have any”. Hot Pepper Spray may be used to repel deer, rabbits and other pests from flowers and some vegetables. Note, use caution with vegetables as the peppery taste may remain on the fruit.

. You can make your own Hot Pepper Spray with the following recipe:  
Put 6 hot peppers (the hotter the better) and two cups of water into a blender.  
Mix at high speed for 1-2 minutes.  
Pour into a container and set aside for up to one day.  
Strain liquid through a cheese cloth. (I have used a coffee filter)  
Add liquid into a one quart container. Fill container to top with water.  
Apply liberally to plants. Re-apply every week to two weeks or after a rain.

**Insecticidal Soap or Safer Soap** – This is the safest spray you can get. It can be used on plants indoors. It kills insects by not allowing them to breathe. There is a recipe for making your own using liquid dish detergent but this is not recommended. Dish detergent may have adverse effects on plants. I had a man to tell me that someone told him a good way to get rid of aphids was to throw your dish water on your roses. He said

he tried it and killed all of his roses. **DO NOT** use dish detergent or any kind of household detergents on plants.

**Homemade Fungicide (powdery mildew)** – Ingredients: Baking Soda and Vegetable Oil. Put one tablespoon of vegetable oil and two tablespoons of baking soda in a gallon of water and use as a spray. This has been studied by several universities and was determined that the oil is what did the trick. The baking soda does very little for the fungus but may help to keep the oil suspended in the water.

**Insecticide Garlic Spray** – Ingredients: 1 garlic bulb, water.  
Take an entire garlic bulb and two cups of water and blend in blender.  
Mix at high speed for 1-2 minutes.  
Pour into a container and set aside for up to one day.  
Strain liquid through a cheese cloth.  
Mix liquid with one gallon of water.  
Apply liberally on top and bottom of leaves.

**Got Milk?** Some scientists believe milk has germicidal properties, and is effective against Powdery Mildew. Here are some excerpts from an article by Arzeene Hamir on the uses of Milk.

Researchers in South America discovered a new alternative to controlling powdery mildew. Wagner Bettiol, a scientist from Brazil, found that weekly sprays of milk controlled powdery mildew in zucchini just as effectively as synthetic fungicides such as fenarimol or benomyl. Not only was milk found to be effective at controlling the disease, it also acted as a foliar fertilizer, boosting the plant's immune system. Bettiol found that a weekly spray of milk at a concentration of at least 10% (1 part milk to 9 parts water) significantly reduced the severity of powdery mildew infection on the plants by 90%. While some gardeners may be tempted to increase the concentration of milk for more control, Bettiol found that once concentrations rose above 30%, an innocuous fungus began to grow on the plants.

Scientists aren't 100% sure how milk works to control this disease. It seems that milk is a natural germicide. In addition, it contains several naturally occurring salts and amino acids that are taken up by the plant. From previous experiments using sodium bicarbonate, potassium phosphate, and other salts, researchers have found that the disease is sensitive to these salts. It is possible then, that milk boosts the plant's immune system to prevent the disease.

Mellon growers in New Zealand are saving thousands of dollars every year by spraying their crops with milk instead of synthetic fungicides. The melon growers in New Zealand have been so successful that the wine industry is taking notice and beginning experiments using milk to control powdery mildew in grapes.

What kind of milk should be used? In Bettiol's original experiment, fresh milk was used, straight from the cow. However, this is obviously not feasible to most home gardeners. The research work in New Zealand actually found that using skim milk was just as effective. Not only was it cheaper, but the fact that the milk had no fat content meant that there was less chance of any odors.

Wagner Bettiol's original article was published in the journal *Corp Science*.