

Forward to the Past



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Gregg Hinegardner, owner of First Class Lawn Care LLC in Bridgewater, Va., has been advocating the use of organic fertilizer for years. "I've been interested in organic gardening since high school," he recalls. Not surprisingly, organics were at the center of his business when he began in 2005. "It's the wave of the future," he says.

Hinegardner grew up in Virginia's scenic Shenandoah Valley where the small town of Bridgewater (located about 110 miles west of Washington, D.C.) is located, and he says he appreciates its charm and beauty now more than ever. That's just one of many reasons why he says that he is so passionate about providing services that he feels benefits the environment, the soils on his customers' properties included. Organic fertilizers can actually improve the soil, he says. Organic matter is an important component of a healthy soil, and fertilizing with concentrated forms can keep the bacteria and microorganisms in the soil "in shape."

"Fungi and other beneficial microorganisms that naturally occur in the soil work symbiotically with plants, helping them obtain oxygen and nutrients from the soil," says Hinegardner. "Some synthetic fertilizers and pesticides disturb this process. When overused, these products make the soil sterile and deplete it over time."

A little history

For millions of years, plants have been growing just fine without any human intervention. However, turfgrass contends with many challenges. These challenges include regular mowing (and the removal of clippings), difficult soils and water stress. Other factors conspire to encourage weeds, insects and diseases, which damage or kill turfgrass, and create unsightly areas on maintained lawns.

All fertilizers were organic in the past. In the 19th century, a German

chemist named Justus von Liebig discovered that plant growth depended on three main elements: nitrogen (N), potassium (P) and phosphorus (K). At the time farmers routinely added horse manure to their crops, but soils were still becoming depleted and crops were declining in productivity.



The main source of supplemental fertilizer in the mid-1800s was guano harvested from South America. Guano is a substance composed chiefly of the dung of sea birds or bats. Huge deposits in Peru were shipped to Europe and the Americas. The United States even declared a “Guano Islands Act” that allowed any American citizen to declare guano islands as U.S. territory. Chile, Bolivia, Peru and Spain went to war over it.

By the turn of the century, most of the deposits had been stripped and abandoned. By this time, however, nitrogen was being derived from inorganic sources. Chile mined sodium nitrate from the Atacama Desert, and the country’s economy boomed.

During World War I, German scientists Fritz Haber and Carl Bosch made a momentous discovery. Without getting too technical, by using high temperature and high pressure, along with an iron catalyst, they forced gaseous nitrogen and hydrogen to combine into ammonium nitrate. Although they were actually making these artificial nitrates for munitions, this was also the birth of the chemical fertilizer industry.

A little biology

Basically, plants can’t tell the difference between organic and inorganic fertilizers. Organic fertilizers are insoluble, and must be broken down by soil microbes to become usable by plants. Chemical fertilizers simply skip this step and are immediately available to the plant. It is easy to calculate the exact amount of chemical fertilizer to apply and it is generally inexpensive as well. So it’s only “natural” that chemical fertilizers have been the first choice for many lawn care professionals.

On the other hand, chemical fertilizers can readily burn plants if applied carelessly. Groundwater contamination is a real concern. Inorganic fertilizers can also lead to salts building up in the soil. The ever-growing “green” movement among consumers is bringing organics center stage.

Since most organic fertilizers are naturally slow-release, there is far less chance to burn plants. Many organics also contain trace amounts of micronutrients, which are vital to plant health. Leaching and groundwater contamination are rarely a concern when using purely organic fertilizers.

Sources of organic fertilizers

Not too long ago, it was difficult to find an organic fertilizer supplier. Now there are so many choices that it can be difficult to decide on what to use. And, as it is with any increasingly popular product category, there’s plenty of hype.

Blood meal is what it sounds like. It is basically dried, pulverized blood of animals. It is generally collected from cattle slaughterhouses. Blood meal is high in nitrogen. In fact, it is one of the few organic fertilizers that can burn plants if used at high rates, so be sure to follow label directions carefully. Blood meal also contains small amounts of iron.

Bone meal is another product that is what it sounds like. It comes from the same place as blood meal, but consists of animal bones that have been cleaned and often steamed. It is a good source of phosphorus, and also contains a small amount of nitrogen. Although the analysis can vary from product to product, it is about 4-20-0.

Cottonseed meal is usually easily obtained in cotton-producing states; it is a byproduct after the seeds have been processed for oil. It is a complete fertilizer, with a ratio around 6-2-1. Its release rate is influenced by temperature; the higher the temperature, the faster the release.

Fish emulsion is available almost everywhere. It is a liquid formulation that consists of decomposed, finely pulverized fish. If that sounds like it might smell a little strong, it does! But the odor gradually dissipates and is gone in a day or so. There are also deodorized brands now available. Fish emulsion has several trace elements, too.



[Click image to enlarge.](#)

There are many different organic fertilizers. Users should educate themselves on the pros and cons of the different kinds before incorporating any of them into their programs.

Manures can also be used as fertilizers. However, manure has a low concentration of nutrients, usually about 1-1-1. Manures are mostly used as soil amendments. Be careful of excessive salts if using large quantities.

Processed sewage sludge is another substance that is often used as an amendment, especially in its composted form. Its nutrient content is only about 1-2-0 so it does not offer complete plant nutrition. Activated sludge is a dry, granular product that has a higher percentage, generally about 6-3-0.

Concerns have been raised about heavy metals in sewage sludge. Cadmium is the major culprit. It also contains zinc, which is an important micronutrient but can also build up in soils.

"Personally, I would rather not use biosolids, which are derived from human waste," says Hinegardner.

Using sewage sludge turns a waste product into a usable fertilizer, which is an environmental plus. Heavy metal content varies according to the location where the sludge was harvested and the process by which it was created.

The new organics

One of the newer players on the organic fertilizer market is compost tea. The concept is simple and has been used for years. Compost is placed in some type of permeable bag and soaked in water, until a liquid extract is created. Although some of the hype surrounding compost tea is almost comical, the resulting liquid, when processed correctly, makes a fine fertilizer.

There are as many variations on this technique as there are suppliers. There are elaborate brewers that can be quite expensive, but “guarantee” results, or you can purchase it ready made. Generally, compost tea should be used shortly after it is brewed. It is full of beneficial microorganisms that make the tea decompose and lose potency rapidly.

Humic acids can also contribute to healthy turf. These are often combined with kelp, yucca extracts, and other substances to make organic fertilizers that promise astounding results. Humic acid and fulvic acids are mined, highly decomposed coal, peat or both.

One other option is to let a plant that might be thought of as a weed help increase fertility. White and red clovers fix nitrogen and can reduce the need for fertilizer while providing an attractive green color. The flowers can attract bees, which are another environmental concern today. Although bee stings are a possibility, clover blooms heavily only once a year, and the flowers can be reduced by mowing.



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Gregg Hinegardner started First Class Lawn in 2005 Care promoting a natural approach to lawn care. He says it’s the “wave of the future” for lawns.

“It’s nice for kids to be able to play in a chemical free lawn using white nitrogen fixing clover,” Hinegardner says.

How do you know that the fertilizer you buy is truly organic? The Organic Materials Review Institute (OMRI) is a national nonprofit organization that screens and analyzes products to be sure they live up to their label. OMRI Listed products are allowed for use in certified organic operations under the USDA National Organic Program, so you can be sure that you get what you pay for. Just like food products, words like “natural” and “environmental” have no legal meaning.

Hinegardner holds a pesticide license as well as a fertilizer application license with the state of Virginia, and although he is able to use chemicals, he prefers to promote organics and has successfully won over clients, even if the cost is greater.

“It’s about 10 percent more to use organic fertilizers, but when you educate clients about the advantages, they usually opt in,” he says. “They want a safe place for their children and pets to play.”

Most of the new organics cost a bit more than traditional fertilizers. Are they worth it? The environmental advantages make them a natural choice.

But, are they a sound business choice?

Hinegardner is convinced he did. He adopted a program and products developed by New Hampshire-based [Natural Technologies Inc.](#) and studied at its Organic Lawn Care Institute where he met some of the top practitioners of organic lawn care in the country.

“People told me I’d never make any money, and a rep from a major fertilizer company told me that organic fertilizers didn’t work,” says Hinegardner. But nine years later he’s still providing organic lawn care services and seeing more and more homeowners in Virginia’s Shenandoah Valley seeking that type of service.