

HOME & GARDEN

Test soil before planting

By PAT LEUCHTMAN
Recorder Columnist

It is April and as the days lengthen, the frost is slowly leaving the ground; it is time to start thinking about preparing the garden.

Fertile soil is vital to abundant crops and the first step in an intelligent fertilization is to have the soil tested. The results of the test will help you to know what nutrients your soil needs most, and prevent you from adding nutrients that are already in ample supply. For example, you don't want to add more nitrogen if your soil already has a sufficient amount or your plants will tend to be weak with lots of lush, green foliage, but with few fruits or vegetables.

Although taking a soil sample properly is not difficult it is important to follow a couple of simple rules to guarantee an accurate reading. Use a clean shovel and pail and have a clean box or plastic bag to store the soil sample. Then go out to the garden and dig up a good spadeful of earth from each of the four corners of the garden and one or two from the center. From each of these spadefuls of earth take two or three tablespoons of earth, some from near the surface and some from deeper down. Put these random samples in the clean pail and mix thoroughly. This representative collection of soil samples should give an accurate reading as to the needs of your garden. Approximately a cup of soil is all you will need for your testing; store it in your plastic bag.

The simplest and most basic test to do or have done is to check the PH of your soil. That is, you want to see whether your soil is acid, neutral or alkaline. You can buy a soil testing kit and do this yourself, or you can bring a soil sample down to Tina Smith at the Extension Service in the county courthouse and she will do it for you. This test should be done every year.

The PH scale runs from 0 to 14, with a reading of 7 indicating a neutral soil. If your soil measures on the low side of the scale, it means your soil is acid and if it measures on the high side, it is alkaline. Most garden vegetables prefer a neutral or slightly alkaline soil, so if yours is acid, and in New England it is a good bet that it is, you will want to add lime to make your soil more nearly neutral.

Ground limestone is the mostly commonly used form of lime, although dolomite, a limestone rich in magnesium is also good. Apply limestone in the spring or fall to freshly cultivated soil. Spread it as evenly as possible and scratch it in so it doesn't blow away.

Lime is not a fertilizer, but in acid soils many nutrients are locked up and are not available to your growing plants. As the Extension Service Fact Sheet on "Liming Acid Soils" so succinctly puts it, "Lime corrects soil acidity, supplies calcium or magnesium, or both, improves the availability of some plant nutrients, promotes desirable biological activity and improves the structure of some soils. Proper liming combined with other desirable soil-manage-



BETWEEN THE ROWS

ment practices usually brings increased yields of better quality crops."

But remember some plants do like an acid soil, and in areas where you plant or maintain blueberries, raspberries or blackberries you should not add lime.

The best idea is to check the specific requirements of any crop when planting your garden. Seed and nursery catalogs are one source of information and I often refer to my Rodale Encyclopedia of Organic Gardening. You can go a long way toward insuring successful crops by providing each plant with the things it needs most to grow quickly and vigorously.

You will need to know more about your soil than its PH; next week I'll discuss nitrogen (N), phosphorus (P), and potassium (K) and ways to fertilize your garden with organic materials thus improving your soil's structure and tilth as well as its fertility.

Growth mechanisms stop plants from being fooled

AMHERST — No matter how warm the weather, plants can almost always sort out the real spring from the false spring.

They have a set of growth mechanisms that tell them to wait until spring even through a winter of warm and sunny spells, according to Professor Seymour Shapiro of the botany department at the University of Massachusetts.

These growth mechanisms tune in various ways to the light, temperature and moisture changes of spring, in ways that vary from plant to plant. One of the main factors is what botanists call day length. This is the mechanism that most trees and woody shrubs in this area use to time their budding, flowering and growing cycles, according to Shapiro.

There can be April weather in February and February weather in April but the hours of daylight between sunrise and sunset are the same for any given spring day year after year. This March 21, for example, is the same length, to the minute, as every March 21 in every previous year.

Plants use this day length clock not only in the spring but all through the year, Shapiro said. The drop of leaves in the fall is related to short day length, for example, and many species use day length to time flowering cycles.

The blooms that come out very early on some plants — the forsythia is the best-known example — actually grew the previous summer and fall. Forsythia buds are made in August and hang on the branches as little miniatures through the fall and winter.

Most leaf and flower buds have a similar life cycle, keyed to various day length codes. Some blossoms come before leaves, some after, and some plants blossom in the fall. In each case it's a day length signal of one kind or another, Shapiro said.

There are long day plants and short day plants, he explained. If a long day plant responds to a day length of exactly nine hours, it will begin to flower after a nine hour day or

any day longer than nine hours. A short day length plant that responds to a nine hour day will flower at a day of that length or any day shorter than nine hours.

The long day plants are spring bloomers because they respond to lengthening days and the short day plants bloom in the fall by responding to shortening days, Shapiro said.

Plants are aware of day-length through a light-sensitive substance in most plant cells called phytochrome. It's a pigment that, through a complicated series of reactions, builds up or gets destroyed in proportion to the amount of light it receives and in the process allows the cells to sense the amount of light.

For plant organisms that get no light — seeds or bulbs underground — there's another system, based on the amount of cold temperatures between growing seasons.

And all plants have temperatures and moisture requirements that keep them dormant until temperature and moisture levels are right. Most plants in fact have extra systems in case one doesn't work, "a little bit like wearing a belt and suspenders," Shapiro said.

GARDEN CALENDAR

The following information is provided by the Franklin County Extension Service.

Now is the time to:

- Purchase one-year-old asparagus plants for the best result.
- Fork over compost to hasten decay.

Note:

- Use fertilizer containing weed killers carefully — runoff can cause extensive damage.
- Do not work soil when it is too wet. Workable soil should crumble apart when squeezed.
- There is still time to prune fruit trees.
- The Extension Service has fact sheets on Dormant Oil Spray.

Wood ashes as fertilizer: again 'waste not want not' rings true

By PETER TONGE
Christian Science Monitor

WEYMOUTH — A cold winter and a hot stove have led to an accumulation of wood ash in our home.

Right now the ash is being stored in a container in the garage — as I would any other good garden fertilizer. It will add calcium, potassium, phosphorus, magnesium, and a little sulfur, in that order, to my garden soil during the coming season.

Come to think of it, I would have to pay some hard-earned dollars to buy those same nutrients in conventional fertilizer form from a garden center.

Remember, however, that just because the ash comes free (assuming no one would be so extravagant as to buy a cord or two of wood simply to convert it into fertilizer) is no good reason to use it indiscriminately.

Misused fertilizer is generally much harder on plants than no fertilizer at all.

The exact amount of nutrients in the ash varies

with the species of wood that is burned. But the typical range, according to Dr. Gary F. Griffin, an agronomist with the University of Connecticut extension service, is phosphorus 0.8 to 3.0 percent; potassium 2.8 to 8.6; calcium 14 to 28; magnesium 0.8 to 2.8, and sulfur 0.3 to 0.5 percent.

The one major missing element is nitrogen, which wood has very little of anything. Whatever nitrogen it does have is volatilized and driven off as a gas when the wood burns.

The potassium, calcium, and magnesium in wood ashes are in "oxide or carbonate form," says Dr. Griffin. In other words, they are highly alkaline and can be used in place of ground limestone to counter soil acidity. For this reason you would never use wood ash on such acid-loving plants as blueberries, azaleas, rhododendrons, and the like.

Wood ashes, in fact, are about two-thirds as effective as ground limestone in neutralizing soil acidity. Put another way, 150 pounds of wood ash is equal to 100 pounds of limestone in neutralizing power. On the

other hand, when you use ash in place of limestone, you add substantial quantities of valuable plant nutrients to your soil which limestone does not contain.

As an example, Dr. Griffin cites 150 pounds of wood ash spread over 1,000 square feet of garden soil. Such an application would add about 3 pounds of phosphorus and 17 pounds of potassium. On average garden soils that is almost enough phosphorus and more than enough potassium.

So, rather than apply a complete fertilizer (a waste of money after applying wood ash), add a nitrogen-rich fertilizer at full strength and a phosphorus fertilizer at half strength. Such soils should be ready to produce abundantly.

Nitrogen fertilizers include both urea, or ammonium nitrate (chemical), and blood meal or soybean meal (organic); phosphorus-rich fertilizers include superphosphate (chemical) and bone meal (organic), which is also moderately endowed with nitrogen.

On the other hand, you might do as I plan to do this year and use the ash as one ingredient in a balanced vegetable fertilizer that I shall make up at the begin-

ning of the season. This simple recipe comes from Mel Bartholomew, whose square-foot gardening technique was mentioned in this column a few weeks ago.

Simply mix together 1 part blood meal, 2 parts bone meal, 3 parts wood ash, and 4 parts leaf mold. The nitrogen, phosphorus, and potassium value of this mix works out at approximately 2.6-4.9-2.4, or the same ratio as the standard 5-10-5 recommended for vegetable gardens.

To increase the nitrogen strength for those all-leaf crops, such as cabbage and lettuce, add 2 parts blood meal to 10 parts of the basic mix.

Most experts calculate that a cord of hardwood produces about 60 pounds of ash. This means that, unless he burns about 5 cords of wood a year, anyone who gardens on a fairly large scale won't have all the ashes he needs. But every little bit helps.

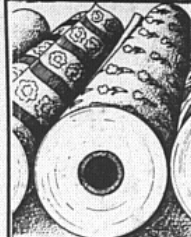
Look around the neighborhood, too. Maybe some of your neighbors have ashes they don't know what to do with?

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