

# Loosen up those rock hard soils the natural way

NEWARK, Del. — "The soil in my yard is as hard as concrete." Have you or any of your neighbors ever made that complaint? You probably have, since it's about the most frequently heard comment from homeowners seeding a lawn or starting a garden.

The problem is usually blamed on clay soil. But more often, explains University of Delaware Extension soil specialist Leo Cotnoir, it results from soils with a high silt content. These silt particles are much smaller than sand, but not small enough to form aggregates like clay. They can make the ground hard, unworkable and very inhospitable for most forms of plant life.

Nature's answer to this dilemma is organic matter and sand — the two best "all natural" soil conditioners. For most of us, organic matter in any form will be the answer to changing that hard ground into a loose, friable, easily worked soil.

Grass clippings, garden refuse, garbage and leaves are all good sources of this organic material. They may be composted, but this is by no means essential, says the soil specialist. They'll be just as valuable if they are worked directly into the soil while fresh.

It's not difficult to add this organic matter, either. For example, when crops like beets and radishes are harvested, cut the tops off and leave them lying on the ground as you go down the row. A small amount of soil scratched up over them will speed decomposition. Coarse materials like corn stalks can also be used. But they'll probably need to be chopped up a little for easy incorporation.

The beneficial effect of organic matter comes from its decomposition. This might be a good point to remember when mulching plants. If your main concern in mulching is to keep down weeds and retain soil moisture, long-lasting

materials such as tree bark are fine. But if you're concerned about improving the soil, mulches which decompose rapidly are best.

One of the most effective forms of organic matter for soil conditioning is grass roots. For this reason, a winter cover of ryegrass, rye or barley can be very helpful.

Common ryegrass can be seeded from late August until the end of September. You don't have to wait for harvest. It can be seeded between rows of growing crops. Just scatter the seed and rake the ground lightly to cover it. Cereal grasses like barley can be sown as late as October. Or if you don't get to it sooner, try planting rye up to early November.

The problem with grass cover crops for most home gardeners is working them into the ground, come spring. A good cover seeded in fall can produce a fairly tough sod by March. Working it under then

requires effort equal to several miles of jogging.

The trick, in raising a grass cover, is to keep a close eye on it in the Spring. Wait for good early growth, says Cotnoir. But get it worked in as soon as vigorous growth starts or you'll really have a job on your hands. Rye, for example, can shoot up two or three feet during a week or so of warm Spring weather. If this happens, you'll have a hard time working it into the ground. And while the organic matter from the top growth is useful, it's the granulating effect of the roots of these grasses that is most desirable.

Cotnoir says you can't beat sand for quick soil modification in spots which have defied your efforts with mulch and compost. The cure can be costly, but it's guaranteed to bring results.

Moderately coarse sand — the kind usually sold for general concrete mixing — is best. To be effective though, you will need to mix

about half soil and half sand by volume, and this is where the cost comes in. Be sure to do a good job of mixing the two materials, either by hand or with a rototiller.

While the addition of this much sand may not be practical on a large scale, it can easily be done when planting shrubs or small flower beds. For shrubs, dig the hole at least twice as large as needed. Then mix the soil you removed with an equal amount of sand. Even better would be a blend of one part soil, one part sand

and one part peat or compost. Use this modified soil for backfilling around the new plant.

The above treatment will improve the texture and tilth of your soil. It's also possible to modify its pH level at the same time. To do this, include a half cup of limestone in your mix, except when setting out acid-loving plants such as azaleas or rhododendrons. If you want to add a little plant food, too, work a quarter cup of superphosphate or a cup of bone meal into your backfill.

## Water meeting set

PHILADELPHIA - A Symposium on Permeability and Groundwater Contaminant Transport is scheduled for June 20 at the Ben Franklin Hotel, here, by the American Society for Testing and Materials (ASTM). The event is sponsored by ASTM's Committee D-18 on Soil and Rock.

Further information on the

program may be obtained by contacting Riggs at Tufts University, Civil Engineering Department, Medford, MA 02153; Zimmie at Rensselaer Polytechnic Institute, Civil Engineering Department, Troy, NY 12181; or Ken Pearson, ASTM Standards Development Division, 1916 Race St., Philadelphia, PA 19103 (215/299-5520).

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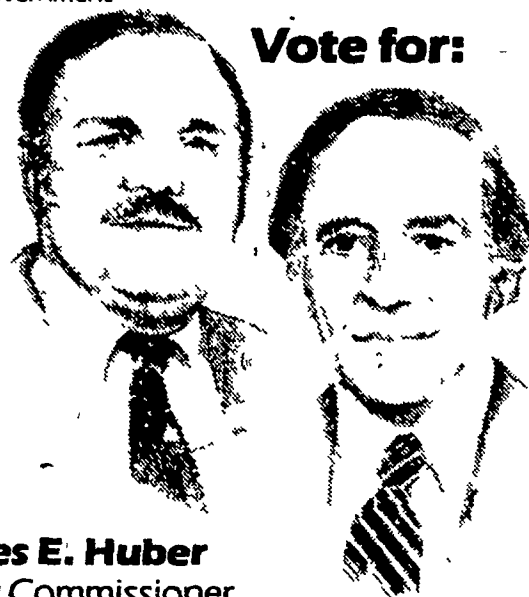
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In just four years, our County Commissioners' Office has permitted its office expense budget to soar from \$427,953 to \$824,209.

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