

# Permanent Aeration for Clay and Compacted Soils with PermaTill®

By Chuck Friedrich, RLA

You come back from the garden center with a new plant on a beautiful spring day. With shovel in hand you select the perfect spot and then all your excitement turns to frustration. Just the sound of the shovel hitting what looks like red concrete is enough to make you give up on gardening. Other than selecting native plants that can survive in red clay, amending the entire planting bed or constructing raised beds is the only solution. Sometimes everything is growing swell then the plant just falls over dead. If the root is gone more than likely a vole got it. PermaTill®, a product available in garden centers can remedy the clay and vole problems using a different application for each.

As difficult as soil can be to cultivate, few people ever think of it as the fragile growing medium that it is. Soils consist of three space-occupying components: solid particles, water and air. The volume composition for a soil in good condition for plant growth is approximately 25% water, 25% air and 50% solid particulate matter. But when good soils are compacted by any means the soil composition becomes less balanced due to the change in the soil structure. When the solid particles are pressed together, there is less pore space and the soil becomes hard and too dense for easy cultivation and proper root development. As a result the micro activity in the soil is reduced and plant performance is inhibited. Soils are not generic in structure, so why should the methods of conditioning them be?

## **Soil Amendments:**

Foremost, the surface water must drain away. Water always runs down hill and standing water is a sign of trouble. The addition of underground drainage pipes may be necessary. The suggested practices of amending clay soils have changed a number of times during the past twenty years. Preparing holes for planting in clay soil keyed the phrase "creating a clay pot" situation. Just digging a hole and shoving a plant into it probably will not provide the results intended. However, digging a hole and filling around the root ball with loose organic matter may be just as bad. This is because the water in the soil will travel to the point of least resistance, such as the clay pot you just created. A plant will die just as quickly from drowning as from drought and the symptoms look curiously similar. The advantage of dry is you can always water it; wet soil cannot be instantly dried out. The use of peat moss alone in clay has not been recommended because of its wetting and drying properties. The addition of sand to clay if not properly proportioned can make a "brick". Eventually it was realized that the best alternative was to not add any amendments and install the plant material in constructed mounds of the native soil or artificial raised beds. Depending on the type of plant, this method did not always allow the plant to perform at its best. When possible, preparing the entire plant bed creates the best situation. The current use of pine bark fines and compost definitely benefit the plant, however the decomposition of pine bark creates slimes which tends to settle out and create an impervious surface at the transition zone of the soils. Compost will perform best if the soil is well aerated. PermaTill can remedy this situation. Properly proportioned (about 35% to 50%) in the native clay with about 15% to 20% organic matter will continuously allow the exchange of air to occur between the surface and soil. The other benefit of the PermaTill is it allows the water to penetrate and move through the soil and because of the air space in the PermaTill particles; the roots can grow deeper into the soil, which protects them from the summer heat and drought. The recommended method of bed preparation is:

## **Application Methods:**

1. For heavy clays place 2" of PermaTill on the surface, work or till the PermaTill into the soil to a depth of 6 to 8 inches providing a 25% to 30% amendment for planting bed. Include ½ inches of compost to increase organic content if needed.
2. For around existing planting, using a garden spading-fork, loosen the soil around the drip line of the plant then fill the crevices with PermaTill to the surface, then top dress with compost. This method has helped keep voles away from the roots of certain plants.

Good decomposed organic matter should be added to garden as needed to continuously provide the necessary microbes to the soil. A product like PermaTill is permanent and only has to be applied one time. The PermaTill will keep the organic matter well aerated, which in return should improve the soil structure over time. Just think, no more jack hammering.

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## **The PermaTill VoleBloc Barrier**

To protect existing plants from vole damage, with a garden fork or spade dig a four-inch wide, one-foot deep “moat” around the drip-line of the plant. The drip-line is where drops of water would hit the ground from the most extended leaves. After the “moat” is dug, fill it with the VoleBloc to the top. Voles also like to tunnel under mulch so it’s best to reduce the mulch around the plant and use VoleBloc as a mulch inside the moat instead.

For new plantings, after tilling the beds, make the planting hole twelve inches wider and two inches deeper than the root ball. Place two inches of VoleBloc in the hole. Then set the root ball on top of the VoleBloc and backfill around the roots with 100% VoleBloc, completely surrounding the roots. Mulch with VoleBloc around the stem.

For bulbs place two inches of VoleBloc in the hole and place the bulbs, surround the bulbs with VoleBloc leaving just the tips exposed. Finally, place a 50% VoleBloc/soil mix over the bulbs to the desired depth. Don’t worry about daffodils because they are poisonous to voles.

Voles are becoming a bigger problem in the home landscape as development reduces wooded areas. People have witnessed dancing plants in the garden that all of a sudden fall over, cut off at the roots, or helplessly watch them get sucked down into the ground just like in a cartoon. Methods like VoleBloc may discourage voles from the garden and send them back to their natural diets in the woods or at least over to your neighbors yard. So watch out for groups of quarter sized holes in the lawn or garden, damaged roots, and dancing plants.

For more information call toll free: (877) 737-6284 or see website [www.permatill.com](http://www.permatill.com)