

# REDUCING PESTICIDES

it's perfectly natural.



## IMPROVING YOUR SOIL ORGANICALLY FOR SUCCESSFUL GARDENING

Successful organic gardening begins with the soil – it is the engine of the garden. The easiest, most dramatic way to improve any garden is to improve its soil. Healthy soil produces vigorous plants, enabling them to fight off pests and diseases and to flower and fruit in greater abundance.

Good garden soil is a complex mixture of minerals, air, water, organic matter, microbes, insects, earthworms, bacteria and fungi. Soil is full of life and needs regular organic amendments to maintain its health. The use of pesticides and inorganic fertilizers can interfere with soil health and kill many of the creatures on which healthy soil depends. With good organic soil, gardening is easier and more fun. The better the soil, the better your gardening results will be.

Today's organic gardeners are more ecologically aware of the accelerated deterioration of the environment. Organic wastes must go somewhere and organic gardeners see the soil as the best place for them. Gardeners can contribute to conserving resources and energy while reducing and eliminating the need for chemical additives.

### Assess Your Soil Type

The mineral particles in soil determine the soil texture. These are, from smallest to largest, clay, silt and sand. Sandy soils have large particles and large air spaces and drain quickly. Clay soils, with smaller particles and air spaces, retain water. The ideal soil is two parts of each sand and silt to one part clay. All soil types can be improved by adding organic matter.

The acidity (pH) of your soil also affects plant health. A neutral soil (pH of 6 or 7) is best for most plants. A simple soil test can be used to determine your soil's pH. Lime can be added if it is too acidic (low pH) and sulphur or moistened peat moss if it is too alkaline (high pH).

### How to Improve Your Soil

Organic matter should be added to your soil every year, not just once in a while. The only limitations are how deep you can dig, how much you can acquire or how strong your back is. It is almost impossible to add too much organic matter to soil, especially if you add well-composted materials. Although it takes several years of adding organic material for the soil to change its structure, even a moderate amount will make an immediate difference. So don't give up!



This fact sheet has been prepared by the Toronto Master Gardeners



## Benefits of Adding Organic Matter

- Improves texture, condition and structure of soil, providing better aeration and temperatures
- Supports living soil organisms
- Improves ability of soil to hold water and nutrients
- Helps dissolve mineral forms of nutrients
- Buffers soil from chemical imbalances
- Maintains a steady supply of plant nutrients
- Helps recycle organic wastes, keeping them out of landfills
- Cheap energy source, replacing manufactured nitrogen

Organic amendments include:

Good quality soil	Mix as thoroughly as possible with existing soil, to a depth of 4–8 inches.
Composted Yard Waste	Spread annually up to 1 kg/m <sup>2</sup> . Works best when there is a balance of “browns” (dead leaves, wood shavings) and “greens” (fresh grass clippings, kitchen waste).
Animal Processing By-products	Blood meal, fish meal and bone meal.
Mushroom Compost	Mushroom compost waste products, which usually contains chicken manure.
Green Manure	Ground up plant products or cover crops—plants that are seeded, grown and then plowed into the garden soil to provide green manure (nitrogen).
Seaweed	Seaweed applied to plants and soil. It reduces transplant shock, increases frost resistance and improve crop storage.
Animal Manure	Use well composted animal manures from animals that eat vegetation. These should be as litter free as possible.
Manure Tea	Made with equal parts of manure and water, and left to steep for 24 hours.
Mulch	Any organic material that is placed on the soil surface around plants, to preserve moisture and suppress weeds. Leaves, straw, pine bark, pine needles and wood chips are excellent choices.

For heavy clay soils it may be necessary to add other amendments to improve drainage and increase the soil’s ability to hold oxygen. These can include:

- Coarse sand (also known as builders or construction sand). Use enough to thoroughly dig in at least 4” or you might end up with soil as hard as concrete instead of more porous soil.
- Inorganic processed minerals, such as vermiculite. These will lighten heavy soil, but should be used in addition to organic material, not in place of them.

Organic gardeners include not only the purists, but also individuals who see it as their small contribution to conserving resources. Mankind has, after all, been beautifying the garden and feeding themselves through organic gardening for centuries.