In the autumn just before the leaves fall, I start a new pile. By the spring, my first pile is mostly ready to go on the garden. I use a coarse mesh screen (available at Lee Valley) to separate the fair bit of un-composted material, which goes into the next year's bin. I then spread the shifted compost on the garden just before I turn the soil in preparation for planting.

My compost can get a bit warm, but it doesn't get hot enough to kill weed seeds. I try to pull weeds that go into the compost before they go to seed.

The lack of high heat also gives a different finished product. The heat in quick composting destroys many of the species that are in the pile at the beginning – some good, some bad. Only a few can survive the high temperatures, but they tend to be beneficial bacteria.

A slow compost pile tends to have a higher ratio of fungi to bacteria and more of the larger organisms such as pill bugs and worms. These creatures mix up the compost pile by themselves (less turning required) and I believe there is a larger range of nutrients being created because of this increased diversity.

Compost with a high fungal content plays a very different role in the garden than high bacteria compost. Compost with a high bacteria content is good at releasing nutrients into the soil in a form that plants can best use. This is particularly good for annual flowers and vegetables that don't have the time to establish complex root systems.

However, perennials, shrubs and trees have the luxury of a little more time, and compost with a higher fungal content inoculates the soil with beneficial fungi that can work symbiotically with these plants' root systems. Either by encasing the root or, with some species, actually growing into the root tissue, the fungal hyphae dramatically extend the reach of the plant's root system. In exchange for sugars from the plant, the fungi increase the plant's ability to find moisture in times of drought, draw from a much deeper and wider range of soils to access micro nutrients and also metabolize some compounds to make them more accessible to the plants. The microscopic fungal threads can even form a giant mesh throughout the garden soil that moves nutrients and moisture from plants with excess to those in need.

A lot of these fungi are the ones that break down woody matter. This is why I like letting larger chunks of high carbon material spend many months breaking down in the compost. It encourages the ratio of beneficial fungi in the final product. With the materials I use, I expect my slow compost is midway between high bacterial and high fungal, and this gives my plants the best chance to get whatever they need.

By Bob Kennedy, COG - Toronto Chapter

Fast and Slow Composting

Canadian Organic Growers – Toronto Chapter
torontochapter@cog.ca
www.cog.ca

There are two schools of thought when it comes to composting. Some like it fast and others like it slow. The fast composters are the ones you will most likely encounter if you research composting: "Perfect compost in six weeks or less". This method works and, if everything is followed to the letter, it makes a semi-sterile compost very suited to annuals.

In order to make quick compost, you need to have a good nitrogen to carbon ratio in the materials you are composting. The ideal ratio is 30 parts carbon to 1 of nitrogen. The table on the opposite page lists some examples of the carbon and nitrogen content of commonly composted materials.

You need to maintain a constant amount of moisture. The compost pile should be damp, but not wet. Too dry and the composting process stops working. Too wet and only smelly anaerobic bacteria can thrive, and the quality of the compost suffers.

Also, a constant supply of air needs to be supplied throughout the pile. All the most beneficial organisms are oxygen breathers, and they need access to it. Since composting occurs mostly on the surface of the organic matter, the more air spaces you can introduce to the pile, the more surfaces there will be to compost quickly. The best way to get a lot of surface area is to chop materials finely and to aerate the pile by turning it regularly. Turning it one or more times a week will make things move quickly.

Once you have everything balanced, the bacteria grow and feed at an amazing rate. This actually starts to heat up the compost, and one of the benefits of quick composting is that the temperature gets high enough to kill weed seeds and many undesirable organisms. In no time your scraps and waste are unrecognizable, and they have turned into a pleasant smelling, rich dark soil that is pure organic matter full of nutrients in the form most beneficial to plants.

But, there is another way of making compost: slow and steady without a lot of bother. Besides being less work, there are some reasons to consider slowing down the compost process.

It can be very difficult maintaining the ideal carbon to nitrogen ratio at all times of the year. In the fall, the dead leaves and brush tend to be high in carbon; in the spring, all the green weeds tend to elevate the nitrogen. With slow composting, I just chuck it in as it becomes available, give it a stir or two – maybe water it if things seem dry. Then I leave it, and just keep adding things to the pile as they become available.

I only cut things up enough so that they will lie flat in the bin. By keeping things coarser, it allows more air into the pile, which means less turning. Also, because the carbon based material hasn't broken down much since the fall, it's ready and waiting when the green weeds are added in the spring.

Carbon and Nitrogen Content
of Common Compost Ingredients
(from Organic Gardening Magazine)

Material	% Carbon	%Nitrogen
Alfalfa pellets	40.5	2.7
Blood meal	43	13
Cottonseed meal	42	6
Soybean meal	42	6
Legume hay, dry	40	2.0-2.5
Nonlegume hay, dry	40	1.0-1.5
Fresh manure, cow	12-20	0.6-1.0
Fresh manure, horse	20-35	0.5-1.0
Fresh manure, laying chickens	10.5-20	1.5-3.0
Fresh manure, broiler chickens	20-32.5	1.3-2.0
Wheat or oat straw, dry	48	0.5
Grass clippings, fresh	10-15	1-2
Fallen leaves	20-35	0.4-1.0
Newspaper or cardboard, dry	40	0.1
Wood chips or sawdust	25-50	0.1
Coffee grounds	25	1.0
Vegetable wastes, fresh, leafy	10	1.0
Vegetable wastes, starchy	15	1.0
Kitchen scraps	10-20	1-2
Fruit wastes	8	0.5
Seaweed, fresh	10	1.0
Weeds, fresh	10-20	1-4