A Talk on Compost©

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INTRODUCTION

"Compost is the highest achievement of Man on Earth" … Well, that's what I think anyway. Where would we be without compost? What sort of a mess would everything be in?

You'll know, probably, more than I do about compost. At least I hope so as you are professional plant propagators. I am not an academic, neither am I an expert in anything. I am just a gardener, but if I can remind those of you, even one of you, of the incredible value of compost then I have done my job.

May I first, please, "get a grouse off my chest", "have a beef about something"? I'm the end user, the consumer or one of them, of the products of your business. I buy the plant! I hope to suggest to you that compost can be the ideal base for a first class potting mix.

They can, of course, be individually prepared for separate crops and plant needs, more or less drainage, lime or not, leaf-mould and so on. The usual potting material mix is crushed bark or peat … with more than liberal quantities of Osmocote® (Scotts Company, U.S.A.), or other slow-release fertilisers.

The mix needs daily watering whilst you await a suitable planting spot to be made ready or the right time, season, climate, weather. You can't wait until you are ready before you buy the desired variety, colour, size, shape, flower, or leaf form as it will have sold out. You put it in the shade house if you are lucky enough to have one (I haven't!) or it gets put up against the hedge and then forgotten, and a few days later it is dead. If you are away for a few days you may rest assured that the same fate strikes. A certain sad story goes like this. My wife and I were given, by our children, a splendid maple to celebrate our anniversary. You've guessed it, it died and now I have to secretly sneak out and buy another, if I can find one and get it into the ground before anyone notices! I know you are using vast quantities of "stuff" and producing huge numbers of plants, all quite easy to water with vast irrigators. Truly, I have just about stopped buying plants in planter bags because of this problem. So, please, will you put a good water-holding material, compost perhaps, into your potting mix, just for us mere mortals? I am not alone in this, so if you have noticed that your sales are down, it's me!

USING COMPOST

There can be problems in using compost. If you wish to have organic certification then you need to know the origins of all the ingredients of your compost materials. Organic certification schemes such as Bio-Gro® (New Zealand Biological Producers Council Inc., Auckland), Demeter™ (Bio-Dynamic Farming and Gardening Association (NZ) Inc.), and Certenz™ (Agriquality New Zealand Ltd., Wellington) are all careful about what you can use. One of the large composting companies is making a certified product in Auckland from green material at the rubbish tip/landfill. A similar product in Wellington is not certifiable because they add sewage sludge. This can contain heavy metals and industrial chemical residues. Sewage can also

contain hormones that resist the composing process and cause havoc. Any green material bulk composting plant can have a problem with herbicide residue; some types just don't degrade sufficiently under a standard composting system. I have heard of one such plant that has a heap of mature compost containing over 3000 m^3 contaminated with a popular herbicide. But these problems will be for the future to fix, as they will have to be. Meanwhile we have plenty of good raw material to hand.

RAW MATERIALS

Cow Manure. Usually available from wintering barns; just check with the farmer on what chemicals he has used. Generally cow manure is fine after thorough composting.

Horse Manure. Horse people are usually very careful about what they put down horses throats, I mean horses are expensive! The result is that the manure is very good. In earlier times it was the backbone of the gardening and horticultural worlds. It is rich in nitrogen and makes very hot compost.

Sheep Manure. Collected from shearing sheds and adding "dags" generally makes a good, hot compost.

Exotic Manure. Goat, llama, vicuna, alpaca, as far as I know they are all good and I regularly use goat manure.

Pig/Chicken Manure. I'd leave these alone if the manure comes from a commercial farm. It would seem that the use of a range of unwanted chemicals, including antibiotics, could be present and it's not worth the risk. If from your own back yard, good.

Human Manure. It is used throughout many parts of the world, but for a whole raft of philosophical and practical reasons it may be better to avoid it at present. Mind you, throughout many parts of the East farmers put "privies" in their field to entice passing folk to.....?

Fish Waste. Both fish-meal and fish scraps are rich in phosphorus and nitrogen and a range of trace elements. Used to be available from your local, friendly fisherman, before the politicians got their fingers in it.

Seaweed. Excellent compost material. Most types are fine though the brown Laminarian weeds are probably best. *Ecklonia radiata* in the north, (mid North Island has another Laminarian the name of which escapes me just at the moment). Down here in North Otago, and indeed all down the southern east coast, you will find *Macrocystis pyrifera*. This is a truly superb seaweed for composting and is available in huge quantities. They contain major, minor, and trace elements; a range of growth stimulants; humus building properties; and very rich in potash. The only known problem, you have to go and get it!

Leaves. They provide good quality humus in time and oak and beech have been recognised as especially good, though all leaves are good. Don't use too many in a given compost heap, about 10%, as they tend to matt and it is less easy for the water to percolate. You can even use the troublesome ones, walnut and eucalyptus, chop first if possible, and mix well.

Green Waste. Soft prunings, grass clippings, pond weed, drain cleanings. All very good if some common sense is used. Fish products, seaweed, leaves, green waste are usually well accepted for organic certification schemes.

Hay/Straw/Silage. These are acceptable if produced organically. They can carry forward some undesirable chemicals, especially herbicides. The main difficulty is getting good material as it is used by the organic farmers that produce it.

Sawdust and Wood Chips. Sawdust can have a carbon/nitrogen ratio of 3-400 : 1 and for compost you need about 25 : 1 so a good source of extra nitrogen is needed. Now this used to be blood and bone fertilisers and very good they were. These fertilisers are no longer acceptable to certifying agencies, as some of the chemicals used don't degrade suitably in the composting process. If you are not bothered about certification then blood and bone can still be used but it will pay you to make a good, hot heap and only use it when fully mature. Of course, do not ever use sawdust from treated timber.

Fish Meal. This is an excellent source of nitrogen for composting sawdust. For small amounts of sawdust try mixing with grass clippings, though you may have to do it a couple of times and it is a good way to get rid of all those clippings. Sawdust/wood chips can (when composted, of course) be a very good bulking agent in potting mix and improve the drainage.

Peat. No point in composting peat. It has virtually no available plant food and is used as a soil conditioner. Useful in potting mix as long as it is never allowed to dry out.

Crop Residues. Most organic or at least unsprayed residues are acceptable. Pea straw, at least here in North Otago, is a very popular mulch and compost ingredient. An increasing problem seems to be that some growers are spraying crops to enduce the plant to set all flowers at one time. This will enable cheaper harvesting and more profit. Unfortunately it has been reported that the effect is passed-on when the straw is used as mulch. This causes the plants in the mulch to set all their flowers at the same time and then nothing else for the rest of the season.

With care, most of the raw material is free but will require labour. Perhaps co-operatives can be set up to supply the needs of all growers in a given area?

MYCORRHIZA

You know how important the mycorrhizal association is and you have already heard a presentation about edible mycorrhiza. There are thousands of others busy helping plants grow and compost is the ideal material with which to feed your soil and then for the mycorrhizal fungi to feed the plants. I don't need to explain to you in detail how that works. Briefly, there is a strong symbiotic relationship between the fungi and the plant. The fungi provide the minerals that the plant has difficulty in isolating and in return the plant provides the fungi with sugars produced by the leaves through photosynthesis. It is very important for the potting mix or other growing medium to support the mycorrhizal action, which means the correct soil climate and that means compost.

IN SUMMARY

What more do you want? Compost contains all that a plant needs: Carbon/nitrogen ratio of 10 to 1, giving plenty of nitrogen and plenty of carbon, which is often in short supply in today's soils. In addition compost provides major, minor, and trace elements and a full range of friendly soil organisms. Perhaps the most important of all is organic matter, which creates the ideal soil climate for all plants and, in time, produces humus. Humus could well be described as the most important product on the planet. And that, as they say, is another story.