Dead animal composting as a disposal method on USA farms began with poultry in the 1980's (Murphy and Carr, 1991, Fulhage and Ellis, 1994; Glanville and Trampel, 1997)and later was adapted to swine. Most recently it has been adopted for other livestock (cattle, sheep), exotic animals, and road kills. In the past specific recommendations were adopted for composting each species and failed to recognise the similarities for composting different species.

Plants that are given compost grow better, are less affected by pests, rust and other diseases and by droughts, saving costs and giving a better crop.

## It's Easy

Compost can be clean, odourless and profitable, provided it is made correctly which is easy.

Lawn and hedge clippings, leaves, weeds and vegetable waste make good compost, provided they are spread evenly no thicker than 10 cm, and agricultural lime is sprinkled evenly at about a kilo per square metre over each layer of vegetation. Tap the lime into the vegetation with the back of a garden fork. Rain or watering will also wash the lime in.

Some people have written recipes for mixing vegetation as if they were cooking a cake which is ridiculous. Exact quantities of specific vegetation as recommended by some are not necessary. Earthworms are an essential part of compost and are happy with any one food as different as lawn clippings or ruminant paunch contents, but do like variety and will mix it to a degree within a small area that they move in as they turn vegetation into the best compost possible without any human mixing. However if a variety of vegetation is being used, spread it over the heap in alternating layers, each with agricultural lime - no other type.

Animal and bird manure are loved by earthworms, but should be put in thin layers under the vegetation. If animal manure is not available, sheep pellets from a garden centre are liked so much that they will draw the earthworms to them. They improve the fertiliser value of the compost and only need be spread thinly under a layer of vegetation. They also like newspaper and cardboard in small amounts.

A heaped tablespoon of reactive phosphate (RP) with trace elements per square metre will also encourage earthworms, as will the same amount of a good soluble mineral mix.

Don't add anything which will attract dogs or rats such as waste human food, unless well covered in the centre.

Only cover the bin if excessive rain is forecast. Water it before it gets dry because mould will form and heat up causing earthworms to leave.

## Avoid Toxins

Most vegetation is suitable provided it is not thicker than a centimetre if woody or two cm if softer such as broad bean stems, and not poisonous such as Olianda, Rhododendron, wild cucumber, some buttercups, ragwort, Pinus Radiata (Monterey pine) needles, some oak tree acorns and leaves, Yew, Tutu, a wild plant in New Zealand.

Lawn clippings after spraying with a weed killer should be avoided and after applying too much nitrogen in any form, the lawn clippings should not be put on a compost heap that has earthworms because they might move out as has happened to me more than once. The heap started to smell and when I dug in to see what was happening the acid high nitrate smell was dreadful. There was not a single earthworm left. We had to dump the lawn clippings and start again. The earthworms came back. Had there been a concrete floor or all in a drum they would have died.

If pockets of vegetation go green (like silage) and don't decompose, it is a sign of needing more lime mixed with it. If parts go mouldy, more water should have been applied.

Heating to about 60 degrees C is recommended by some to kill weed seeds and germs, but should be avoided because earthworms will not tolerate any heating of the material. They eat most seeds and turn them into compost so germinating is impossible, however ones on the edge of a bin could get too dry for earthworms to eat so put problem things in the centre of the bin and have the centre higher than the edges so that surplus rain or water runs down the edges.

Some organic rules require compost to heat up to between 53 degrees C (131 F ) and 80 C (170 F) for at least 3 days. Earthworms will not survive and I believe that they do more good in decomposing organic matter and animal manure safely than heat which can cause mould and smells and attract flies during the

heating and cooling periods. Where earthworms are treated correctly as described here, flies and smells will not occur.

### Bins.

Home gardeners can use any type of bin, drum, bottomless container or three walls of wood or concrete in a U shape, so that earthworms can come and go from underneath, and to allow drainage to prevent anaerobic smelly compost. Build at least two bins to allow one to decompose while the other is being filled. A lid is not necessary, but if used the compost must be watered lightly every few days.

Birds will scratch the top of compost looking for earthworms and other insects. A 2 to 5 cm mesh will keep birds out.

### Earthworms

Many say that the hard part of making compost is the turning or mixing, but if earthworms are used there is no turning and there must not be.

Earthworms will be attracted to it because of the decaying vegetation and the sweetening effect of the lime. They will multiply and consume the material, mixing it and increasing its fertilising qualities.

Caliginosa, pasture earthworm and the mainly compost worms - **Lumbricus Rubellus** (Red Worm) and **Eisenia Foetida or Fetida (**Tiger Worm, Redworm, Red Wiggler, Manure or Compost Worm, Stink Worm, Fish Worm or Dung Worm.)

Rubellus and Foetida are excellent in compost, but don't last long in soils under pasture unless they never get dry and always have animal manure.

Earthworms like the same optimum conditions that decomposing compost does. Where earthworms thrive, so do the useful soil organisms that we can't see, but can smell - they smell nice to most of us. A sour, wet anaerobic soil stinks and has no earthworms or useful organisms.

### No Flies

If these instructions are followed, flies will not breed in it and no nuisance will be created.

### Fewer Problems

Plants which are given compost grow better, are less affected by pests, diseases and droughts, saving costs and giving a better product for little effort.

Avoid plastics, and

Don't use the compost heap as a rubbish dump.

Avoid using twitch, couch or oxalis which can keep growing.

Use a shredder to shred twigs and branches and turn them into compost.

Don' t mix material - applying agricultural lime will attract earthworms to do the mixing for you.

Very active earthworms are available from John Stemmer, Rangimarie Earthworm Farm, RD 3, Motueka. 03-528-9614. Stipulate worms for compost and garden. made with a lacerating forag is bent over and cut at the base, so mu

Soil & compost 20 - 40 mm

Use only a fork to get the compost out. A spade or shovel can cut the few earthworms that could still be there.

The KISS (Keep It Simple System) principle applies as much to composting as to anything. All that is required is a soil base, vegetation, lime, rain or sprinkler water, walls to contain the material both before the earthworms do their job, and the final black, clean, non-smelling compost and bird protection. Because earthworms are valuable assets that Julius Caesar identified earthworms as beneficial and declared them protected.