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Good Life Gardening ~ Brian Crumblehulme

Farm & garden facts—or all you ever needed to know about manure

Garden books and magazines wax lyrical about the benefits of animal manure around plants and trees but very little about why. So here it is: the story of shit.

Manure is the partly decomposed left-overs from a good meal, where the digestion of complex carbohydrates, fats, and proteins to basic sugars and amino acids is well underway. So much so that some of the same intestinal bacteria will often continue their happy mission even on the ground. I am not suggesting that the two processes are one continuum, simply that there is a close relationship.

Plants too require nutrition but will not thank you for a sandwich or burger. The primary energy source for plants is the sun. Through photosynthesis, a little water, and little carbon dioxide, the average green plant will produce sugar which in turn is converted into starch and maybe cellulose. Plants, however, still require a base diet of minerals if they are to remain healthy.

Most wild plants and trees are lean eaters and are able to survive on traces of minerals gleaned from rocks or washed through the soil from forest debris including the occasional dead animal.

Your average hybridised garden vegetable by contrast will starve as quickly as you or I left to fend for ourselves in the wilderness if they not provided with a supplemental diet. This is not something limited to GM super plants, it is a process that has been recognised and practiced for thousands of years across every continent except Antarctica; in short, return to the earth what you take from it. The most efficient way to achieve this is by a liberal application of dung, manure, droppings—callitwhatyouwanna. Dead animals are also a potential source of chemicals for a hungry plant. In fact in wine producing Italy there is an old adage that says you should plant a new vine on ground where you have recently buried a dead donkey. All very well if there are lots of donkeys, but the alternative is dung and urine, and the richest dung is that obtained from the best fed animal with the poorest digestive system. If the animal can extract all the nutrients from its lunch then there will be nothing left—literally, which brings us to the question of whose droppings do we pick up.

Traditionally, humans and birds are the richest depositors, followed by pigs, rabbits, sheep, and horses, and here's why. Most of us are well fed or overfed and the 'night-soil' so produced is rich in every mineral on the periodic table with the possible exception of plutonium. Human faeces are excellent for growing crops, however, fresh faeces can also carry live pathogens that will continue to live in the soil, so it is vital that human excrement is properly fermented before it is spread on the salad bed. Not easy to reconcile in our flush-away culture; composting toilets are far more efficient than conventional flushing ones and may be making a slow comeback; watch for changing bylaws in your future.

The same principle applies to most mammals but the degree of risk is considerably less. Chicken manure is also very rich but for different reasons. Birds are not mammals. To put it plainly, their urine and faeces exit together resulting in a 'bird-lime' exceptionally rich in nitrogen, potassium and phosphorus. In aged bird-lime, known as guano, the nitrogen is considerably reduced rendering it safe for plants and gardeners. Fresh bird droppings, by contrast can be so strong in ammonia that it will produce chemical burns and cause root damage if spread near young plants. Six months in a compost heap will cure that problem.

Manure from any well-fed, healthy mammal will suffice, although here on the coast we have little access to elephant or aardvark. Pigs come a close second to humans given that they are omnivores, followed by horses if they are not on an all grass diet, and horse manure is safe even when fresh. Sheep, goats and rabbits if they are well cared for, all produce a fair quantity of readily available plant food that will improve the diet of most garden flowers and vegetables. The manure most generally

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available (in supermarkets yet) in this country is the ubiquitous bovine—cow and steer manure—aged and sterilised for your convenience. It certainly has its value but these animals are ruminants, they have four stomachs and after the bovine lunch has been ruminated upon, there is little left except methane and fibre. Aged steer and even so-called mushroom manure (twice used) has some value but it sits last on my plant menu.

Some garden books do provide comparison charts showing the relative mineral values of manures; however, they rarely demonstrate the life expectancy of each manure after it has been mixed in with garden soil. Once again, humans, pigs & rabbits last longest, chickens & horses are usually good for two years, while the offerings of cud-chewing cows are spent after a few months. It has also been demonstrated that young growing animals (teens) need more nutrition to build bones and muscles and consequently are more efficient than older ones in extracting food needs from their diet, which means that manures produced by older animals are richer and better for plants.

The droppings of farm animals left out in the field for a few months while rich in fibre will have lost most of the nutritional value through decomposition, rain and the release of gases. Urine too will be lost to the field and diluted urine on its own is a very effective fertilizer as it contains all the primary plant chemicals in solution. Urine however, is effectively a chemical fertilizer as it contributes little in the way of humus to build up the soil, and, it is essentially sterile and therefore safe. Peeing on trees is good for the tree, peeing on lettuces will only burn them and ruin the flavour.

The best resolution for collection then is the concrete floored barn or stable littered with straw or wood chips that will hold both the manure and urine together, plus a composting toilet.

The simplest way to deal with animal manures is to spread and dig them directly into the ground as soon as possible. Once buried, the bacteria in the soil will enhance fermentation and the soluble salts of decomposition will be held in colloidal suspension in the organic humus instead of being washed away by rain or excess watering. If in doubt, the alternative is to mix any manure in the garden compost heap with a little top-soil for a few months before applying to the ground. Otherwise, the best way to store fresh manure while it ferments is in a closed bin. A pile of manure can be stored outside but then it must be covered or the rain will wash much of the mineral content away as soon as it becomes soluble and any ammonia will be lost through evaporation.

It has been estimated that more than 80% of the nutritional value of farm and 100% of domestic manures are lost through negligence and mishandling before any of it finds its way to the garden or farm. This simple age-old technique heralded by the Romans and ancient Chinese alike and responsible for the annual renewal of farms and gardens world-wide, became yet another victim of urban paranoia and industrial marketing. Only by recognising our symbiotic relationship with the land, applying appropriate technology, and by treating plants and animals with respect, can we hope to recover some of the health, independence, and control once shared by communities everywhere.

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