

Healthy Hectares

Manure – magic and malady

By Chris Ferreira

As you can imagine manure presents a bit of a challenge in your paddocks. On the one hand, in good proportions it is simply one of the greatest raw materials to recharge your soils and revitalise your plants. Kikuyu in particular, as any horse owner can tell you, loves nothing more than warm, moist soil and a nice fat covering of manure to kick it into top gear, but on the other hand manure is often riddled with worm eggs, can be charged full of potential groundwater pollutants and makes a great haven for fly breeding. The trick, as always, is to find the right balance so that you get the best out of the manure without adding to your worm and fly problems and this, believe it or not, has more to do with the fate and fortune of the humble Dung Beetle than pretty much anything else.

When they are at their prime these guys really are the business. In one fell swoop they will rid your paddocks of potential worm and fly egg repositories whilst they spread your manure evenly through the soil in a way that an organic farmer could only dream of. In their tireless and largely unheralded way they attack and literally gorge on poo, ripping it apart, collecting and rolling it into their quaint little balls to whisk off and bury in the soil. These guys are so important, so integral, not only your property but to life as we know it in this country that we really should have National Dung Beetle Appreciation Day. In fact without the efforts of these wonderful beasties fly numbers in the city would have continued to curtail the joys of outdoor eating showing that the relatively recent rise of the café culture in our increasingly cosmopolitan cities has more to do with the unstinting efforts of these unassuming bugs than the vision and verve of our city leaders and restaurateurs. Put simply, Dung Beetles can make or break the health of your paddocks and you should be doing everything to nurture their existence on your patch. Try this for starters:

Be careful using wormers. Remember that whilst wormers are effective against the nasties that will predate on your stock they are lethal to pretty well all critters including our precious earthworms and of course the Dung Beetles. Use worm egg tests to determine your worming regime. Worm Watch (<http://www.wormwatch.com.au>) can provide you with test kits. You just pop a poo in the container and send it off to them and they will tell you by analysing the worm egg numbers in the sample whether

you need to worm or not. Consistently such prudent testing has been shown to reduce the amount of wormers used by up to 30%.

Collect and remove all manure for a week AFTER worming. This manure is toxic and should be treated as such. Monitor where wormed horses go and remove poo from paddocks and yards. You can either compost it separately in its own special bin (the chemicals will break down in time) or dispose of it at the tip.

Minimise the use of chemicals on the farm. It should go without saying that chemicals, be they herbicides, insecticides, drenches or fungicides will do more harm than good to all soil life and should be used sparingly and carefully. When it comes to any proposed actions on the farm, try and get into the habit of first thinking, “what will be the impact on my precious soil and the trillions of things that live in there and upon which my productivity is utterly dependent?”

Leave manures in the paddocks when Dung Beetles are active. If you disturb or remove the manure at that time you are robbing the Dung Beetles of their all-important feed and breeding supplies and they will quickly go the way of the Dodo if you continue.

Do your own capture and release program. When I was feeling particularly romantic I gave my wife a bucket of sloppy Dung Beetle-infested cow pats that I got from a client’s farm. We took the seething mass to our farm which was sadly lacking in these black wonder bugs and we released them onto fresh dung in the paddocks. My wife and the farm were eternally grateful! If you can’t stand being that romantic you can often get supplies of Dung Beetle eggs from either:

<http://www.dungbeetlesolutions.com.au/> or

http://www.agric.wa.gov.au/content/pw/ins/fn058_1991.htm

Spread or collect manure between dung beetle surges. Sadly, there will be times when these little blighters will be absent and you will need to do the next best thing and either kick and spread the ‘fresh’ poo across the paddocks or remove it and store it for composting or removal offsite. Kicking the poo in the paddock is an interesting option and it certainly represents the easiest way to reuse this magical resource. It will also allow you to cleverly bypass the whole fly problem by essentially smashing up their all-important egg-laying source, and because breaking up and spreading the poo exposes it to predators, the elements and UV rays, it can help to kill worm eggs and allow the manure to more quickly and safely return to the soil to become a valuable organic matter source.

The trouble is that the worm eggs are tough little buggers and unless it is hot and dry they can persist and reinfest your stock for months. The trick is to know what is best to do in different areas. So use the following guidelines to determine what you should do and when:

High-use areas such as day paddocks and yards. You must remove manure from these areas as there will be no time to kill off the worm eggs and so leaving the manure will just reinfest your horses with worms.

Larger and low use paddock areas. If you are rotation-grazing (which I hope we have managed to convince you to do) then manure can be left and spread, especially in the hot dry months when the relentless heat will kill off the eggs. In spring and winter this won't be as effective and so if possible manure should be picked up then. If manure is left and spread then it should be done once the stock are removed from the paddock and not returned until the manure has broken down and hopefully the majority of the worm eggs are killed. In the hot months this will mean resting for a few weeks and in winter and spring for at least a couple of months. This is not always possible, so you need to either accept that worm burdens in your stock will be higher or remove and hopefully compost the stuff.

Interestingly, the major consequence of failing to either pick up or spread manure is the 'rough' rank pasture clumps that your stock will stubbornly refuse to eat. These are the sites of old manure piles that we allowed to break down undisturbed where the excess nutrients caused the proliferation of rank and sour pasture regrowth. For larger paddocks you can use a harrow (an old upturned bed frame is perfect) and drag this around to spread and break up the poo or a tractor slasher, sit-down mower – even the brush cutter can do the job. So important is this action to healthy paddocks that even with a leg in plaster my wife hobbled around the paddocks four times a week deftly using one crutch to hit and scatter the manure. That's dedication!

Part Two: Healthy Hecates Manure – magic and the malady

Composting Manure

If you are going to have stock, especially horses, there has to be some reward for all the time, money and effort and I believe it can be the steady and fabulously consistent supplies of life-giving manure. Particularly when combined with straw and sawdust from yards and

stables it makes one of the best mixes of raw ingredients for making premium soil-building compost. Make no mistake, whenever you get the chance it is worth using this manure waste to ramp up production on the farm. Many people, however, settle for less, using the manure raw, piling it around fruit trees and spreading it over the tentative extensions of kikuyu. This creates a real problem, especially on the sands of Perth where the relentless sun dries it out, leaving you with lifeless nuggets and greatly compounded water repellency.

The answer of course is to use manure as an essential ingredient in the most wonderful of life giving processes and get into composting! Compost is, by its very definition, a fully broken down plant-ready product, teeming with biological life that has been the basis for building natural soil fertility and hence pasture health for thousands of years. Spread over paddocks, used for planting or conditioning trees, compost has no equal.

But given the volumes you can be dealing with – three horses can easily give you a wheelbarrow a day from stables and yards – the homestyle compost tumbler or black bin isn't really going to cut it. So getting serious about composting on the farm will mean setting up a bigger and more comprehensive system. For starters you will want decent sized pens to handle a good stash of composting material. The best and most cost effective pens will be able to handle about one cubic metre of material. They can be made with three pallets arranged and connected as shown in the diagram to give a three-sided bay. The pallets are great (though people have used old bales of hay, star pickets and tightly strung chook wire or wooden panels). The important thing is to have an open-sided structure to let as much air as possible into the pile. Ideally aim to have three bins – the first for the new batch, the second for an older maturing batch and the third the final product, the fully matured compost. With time you will work your way through the three bins creating an endless procession of mature, sweet and sexy compost. Ideally site these bins in a line and close to the stables/yards where you can see them and with some dappled northern shade to keep it all cool in summer. There are three key ingredients you need to make compost that looks good enough to eat. If one is missing even for a short while it can all go horribly wrong, so it pays to think of composting like baking a cake: get the ingredients right, follow the recipe with regular management and you will have healthy, sweet compost in a surprisingly short time.

The three key ingredients are:

- 1. *The right raw materials in balance*** This comes down to what is commonly called a balance between your ‘Greens’ (those things high in Nitrogen such as manures, vegie scraps, green plant material) and your ‘Browns’ (things high in Carbon such as straw, sawdust, dry leaves, shredded newspaper). The ratio is the key. Usually, you will hear people talk about one part ‘Greens’ to 30 parts ‘Browns’ which might be a bit hard to quantify. Think in volumes, which should be easier. For every bucket of ‘Greens’ you need 6 or 7 buckets of ‘Browns’.
- 2. *Moisture*** Your compost should be the consistency of a squeezed-out sponge. Too wet and the pile goes mushy and stinks as you will snuff out the air in the pile so that it becomes anaerobic. Too dry and the pile shuts down as everything dies of thirst. In summer you will need to give it water, spread through the pile up to three times a week, whilst in the wetter winter months very little water will be needed.
- 3. *Oxygen*** Without air the pile will shut down too, but not before it goes anaerobic and becomes a stinky mess which will seriously curtail your efforts and enthusiasm. Aim to get whatever is your weapon of choice – the pitchfork, the shovel or the tractor bucket – and turn the heap regularly to get that all-important oxygen in amongst the party. Ideally aim to turn your heaps (or at least poke the blade in and waggle it about a lot) at least three times a week. The more you turn it the faster the compost will take shape.

How will I know when my compost is ready? Simple really. If it is black, looks nothing like the raw materials that went into making it and it smells sweet then whacko! you have made compost.

This is an excerpt from Chris’ up and coming book ***Heavenly Hectares – designing, creating and managing a beautiful, productive and sustainable landscape.*** More details – landcare@southwest.com.au