The Worlds Best Compost

The How & Why

By Rod Turner

Colloidal Humus Compost
Our Holy Grail!

Table of Contents

OK, why is the title of this book making the claim of the world's best compost?

It's because nothing beats Biodynamic colloidal compost for soil structuring effect and all round healthy plant feeding. In this book I'll show you why and how you too can make this prized king of plant food.

How a plant really feeds

Unfortunately almost all growers and Ag advisors in the world have a flawed view of plant feeding. This flawed belief is taught in universities and farmers and gardeners have been "brainwashed" to be blind to the truth by 20th century "so called" science. The first and to my knowledge, only person in the world to clearly observe objectively and then describe how a plant actually feeds is Alex Podolinsky. The leader of the Biodynamic Agricultural Association of Australia.

Let me give a brief overview so we can all be on the same page when I start about the compost itself. This is the cornerstone of healthy plants and healthy food.

In a natural setting in soil there are deposits of a substance called humus distributed in the topsoil. More or less depending on it's fertility. Pure humus is a colloid.

What's a colloid?

A colloid is a special structure of a solid and a liquid that forms a sort of soft suspension. Some examples of colloids are jelly (jello) or butter. The components are held in a solid form within a liquid. Humus is also such a

colloid. But a very special one! The soluble plant food is held tightly in solid form by the uniqueness of the colloidal structure.

Colloidal humus is a special substance that has the normally soluble plant nutrients held in a puttylike formation. It is pliable and rubber like. It will spring back somewhat when pressed. It is sweet smelling (or neutral really) and can contain up to 75% water (although its almost solid). The soluble nutrients will not leach out of the colloid when the soil is watered. They are held in there by the special unique structure of humus. Both nutrients and water bound together tightly. [view the little video clip (1.7MB) to see an example of this amazing humus colloid. This is some of my own well made compost]

http://www.mysecretstuff.com/compost.avi

Now in a natural setting we have this humus in fine quantities distributed in the soil. Plant feeder roots can access the nutrients in this humus and extract it from the colloid structure.

A plant has no independent warmth system. It is entirely dependant on the sun for warmth to rev up it's metabolism and for sunlight to drive photosynthesis. [By the way the only original new life sustaining substance created on earth is created in the leaves of plants]

Given the chance in a natural situation a plant will only feed when the sun is telling it to do so. If the sun is not driving photosynthesis or the plant temperature is too low then the plant **will not** feed. It is kind of "sleeping". But when the plant **is** feeding it takes in just enough "food" to be completely

used up in the photosynthesis in the leaves. All the nutrient is converted into plant material and high quality proteins, flavors, sugars and starches result.

Independent of this feeding process the plant is transpiring water through it's leaves. This happens 24 hours a day whether the sun is shining or not! The amount will depend on heat, wind etc., but it is going on all the time. It is a bit like the plants version of our breathing. If a plant can't transpire water, it wilts then dies. This process requires relatively pure water within the soil profile. Now this water uptake is handled by completely DIFFERENT roots than feeding. Feeding is carried out through fine white hair like feeder roots. The water uptake is through thicker fleshy water roots. So in a natural setting, if allowed, the plant has two different root activities of feeding and drinking.

A plant fed in this way from humus taken of its own free will, if you like, will have a high nutritional value and will have wonderful flavor.

The Solubly Fed Plant

I'd like to now contrast this with the situations where the plant nutrients are made soluble and are available within the soil water. This is the situation with almost every "bought" fertilizer.

What happens when the plant takes in water through its water roots it takes in nutrients in this situation, right? This happens 24 hours a day whether the sun is shining and whether the plant is making new substance or not. The natural reaction to this "free" nutrient by the plant is to try and dilute it down to a normal level by taking in yet more water…..hang on now, it gets even more nutrient. It takes more water and so on and so on. The cell structure becomes bigger and bigger like a balloon until it can expand no more. This

plant actually does not transpire as freely as our naturally fed plant either. It wants to hang onto it's water to keep the nutrient salts diluted.

Now another interesting mechanism is that leaves transpiring water are essential to the photosynthesis process. The little windows in the leaf that let in the light, called stomata need to be sort of blown open by the escaping water vapor. So in our solubly fed plant we actually have even less photosynthesis to get rid of this excess nutrient. We have "free" unmetabolized nutrient within the plant sap.

We have lower quality protein, less and less developed flavors (this is because photosynthesis action makes the flavors) and a big watery bitter plant being force fed!

What happens when something is too wet? It is attractive to fungal growth. In nature's organization, insects and pests are there to "remove" the unhealthy material from the system. They are the clean up crew. SO in a solubly fed plant we have far more "problems" than with a naturally fed plant. Our modern horticulture advisors then advise to use poisons to kill the pests and fungal problems and prop up these sick plants that nature wants out of the way. This further weakens the plant and compounds the problem while poisoning the soil, nature and ourselves to boot. Now we have all heard the saying "we are what we eat". We currently eat unhealthy poor tasting low quality food. So do our meat animals. We and they require propping up with antibiotics and other drugs and supplements to maintain some illusion of health. So to put all this in a nutshell. Plants fed through the soil water have poor flavor, storage and nutritive qualities (this indirectly also leads to obesity

due to overeating to obtain the required “goodness” from our food) and require inputs of dangerous chemical to “protect” them from nature.

Plants fed naturally as nature intended, through humus, have much superior flavor, keeping qualities and nutritive qualities. They are also naturally far, far more pest and disease resistant without having to apply all sorts of poisons.

Trouble!

Now here’s an unfortunate situation. Many growers use raw manures and other “organic” fertilizers, and under many organic methods this is encouraged to achieve healthier food and horticulture. The sad fact is that these fertilizers are also largely water soluble and will feed the plant through the soil water in an unhealthy way. The only natural and correct way to feed ANY plant is through humus colloids contained within the soil. Humus colloids also retain moisture within the soil much longer than the other soil components and will be the last thing to dry in a drought situation. Humus colloids hold the nutrients and resist leaching that causes massive problems with nutrient run off in our waterways resulting in algaes and water weed choking.

What Else?

So enough about humus? No way! The composting method I am about to describe produces almost 100% pure colloidal humus. This compost has other major benefits to the soil apart from it’s ability to feed plants in a healthy way.

As it is the result of intense biological processes the increase in soil microbiology is massive. This results in the freeing of further minerals from the base soil in a healthy way. It also improves the soil structure and crumb very effectively.

Beautiful humus rich well structured garden soil.
This soil was originally almost pure clay with less than an inch of topsoil.
The garden bed had to be made with a crow bar
The purple hue to the soil is finely distributed humus

Some 30 years ago two Australian diary farming brothers shared a large farm. One brother wanted to farm with the Biodynamic method, the other not. They split the farm and farmed their different ways. One plot of land that had ONE application of colloidal humus compost ended up on the farm of the "conventional" farming brother.

Recently this farmer died and the farm become whole again. 30 years on, this plot of land still had better soil structure and healthier pasture growth. Just from one application of this biologically stimulating compost.

What about other compost!

OK now we can move away a little from our humus discussion to composting proper. Let's get some of this stuff happening. By now you will probably guess that I'm going to point out the disadvantages of making what most growers call compost, but in reality after seeing what can be achieved in producing proper colloidal humus compost these other composts can usually be described at best as MULCH or soil. Don't get me wrong. These composts are much better than raw manures and such like but with a little bit of extra care and skill, could be turned into far more beneficial stuff. Let me talk a little about the three major common methods used in domestic gardens around the country today.

1. The bin

If you have one of these you will know that the "compost" you end up with is sometimes just a black oily sticky, unpleasant smelling mess. Not very nice stuff. It is produced anaerobically (without air) and so encourages unhealthy bacteria and pathogens. It is also largely soluble so it feeds plants indiscriminately through the soil water. Would you want some of this stuff hanging around inside your plants? You could be eating it too!

2. The “tumbler”

These are proclaimed to produce “compost” fast as you can turn the compost easily daily. As you can guess this is an aerobic (with air) process and is far better than the bin in 1. To produce good colloidal compost takes 3 to 6 months. Any less than this and you won’t have a quality result.

What you get from the tumbler is mulch. It is fibrous and lacking colloid. It has been produced with a lot of heat and as a result the major proportion of the nutrients contained in the material have been “burnt” out and have been lost to the atmosphere. If you can “smell” a compost then you are losing nutrients to the air. The tumbler only allows the compost to go through the first “hot “ phase of the three needed to produce good colloidal compost and allows most of the nitrogen to dissipate into the air.

3. The “untidy” heap

There is the “untidy heap” of weeds and refuse that is built up over time. This actually produces the best compost of the three common methods as it is closer to what happens in nature to produce humus. Worms are the third phase of good compost and these are present in the bottom of such a heap. The disadvantage is that you have differing stages of the composting process throughout the pile. Good humus can be found at the bottom of the heap and totally undigested material on top. Not easy to use and you have to dig to the bottom to get the better stuff. The other major issue with a heap like this is that most folk let it go “too far” and be digested down to a soil like material. This is way past the humus stage.

The Phases Compost Should Go Through

Next I'd like to discuss the three major (really 4) phases of a good compost heap.

First phase is the "warm" phase most are familiar with if you have made compost with a tumbler or large heap. In this phase we can look at it as a "tear down" phase, like our own digestion. First we must destroy the original material into a basic substance we can then build into something else (like our body). Thermophilic bacteria (heat loving and producing) under the right conditions thrive and fairly rapidly break down the original material into a more basic substance. The trick here is to not let it get too hot. Anything over 120° F or 50°C is too hot. This will kill other bacteria that we need next and will also result in a high loss of original nutrient to the air in the form of ammonia gas and such like. Tumblers and very loosely built heaps allow too much air too fast and result in a rapid "combustion" by these little fellows.

Second major phase is at close to ambient temp and involves fungi and different bacteria working together to further break down the material. A range of organisms bring the compost material into a more neutral or "formless" state.

As these bacteria and fungi die they become food for higher orders of bacteria. These in turn become food for still higher organisms and some small creatures such as springtails. We are now in a building up phase of the heap. This second phase is really the end of breakdown and the start of the build up.

The third phase is the real build up proper into humus by higher and higher order creatures and bacteria in unison. Culminating with the highest creature in the humus chain, the earthworm, (or really compost worms).

Earthworms are generally big and slow. Compost worms by contrast are smaller and quicker little fellows and depending on what the original components of the heap were, will differ in species. In a good biodynamic compost heap these worms will appear of their own accord when the time is right. The final result should be (and composting is as much an art as a science) colloidal humus that is sweet smelling and teeming with life.

Dr Herbert Koepf, a German Biodynamic researcher, found that in well made compost the increase in nitrate nitrogen was by a factor of 10 from the original materials.

Koepf measured 400 parts per million to start with, and at the stage when the compost should be used (more on this later of course) the reading was 4000 parts per million. This is the direct result of the dead bodies of bacteria and small organisms that have fixed atmospheric nitrogen during the proper composting process. If the compost is left too long then the biological action of the remaining organisms “eats” the heap again until it loses it’s colloidal nature and turns into rich crumbly “soil” but with much the same nitrogen as the original starting materials and little of the former structuring power of colloidal compost.

[this “old” compost is ideal for seed raising and plant propagation]

Uprightness

Proper composting is a controlled aerobic (with air) process. Another result of the Biodynamic method (and this extends beyond composting alone) is an uprightness and “life” to plants that can be observed easily once you know what you are looking for. It is unlike plants grown in any other way.

You have to see this to truly appreciate it. Here are a few examples from my own garden.

Have you ever seen a dandelion plant stand up to the sun like this one? The leaves of a good biodynamic plant have a look that can best be described as a “crystalinity”. Notice how regular and ordered the leaves are and how they are standing upright off the soil like little antennae. They also seem to be shooting out like they are arrows shot from a bow.

Here is another example. This time a Hydrangea. What I want you to notice here is the “dancing” quality of the leaves. Vincent Van Gough captures this effect in all his paintings with plants. Take a look at them and you will see what I mean. And now I have to ask… Do your plants dance and stand up like these? Another thing to observe is the color of the leaves. Naturally fed plants during their growing phase have a light “glow green” color that seems lit from within.

A solubly fed plant on the other hand is generally an opaque darker blue green. The leaves are much larger and rounded and droop visibly when compared to a naturally fed plant. These big blue green leaves are full of excess nutrient and water.

Here's a close up of mint leaves. What I want you to notice here apart from the glowing color is the perfect symmetry of the leaf arrangement.

How Do We Make This Stuff?

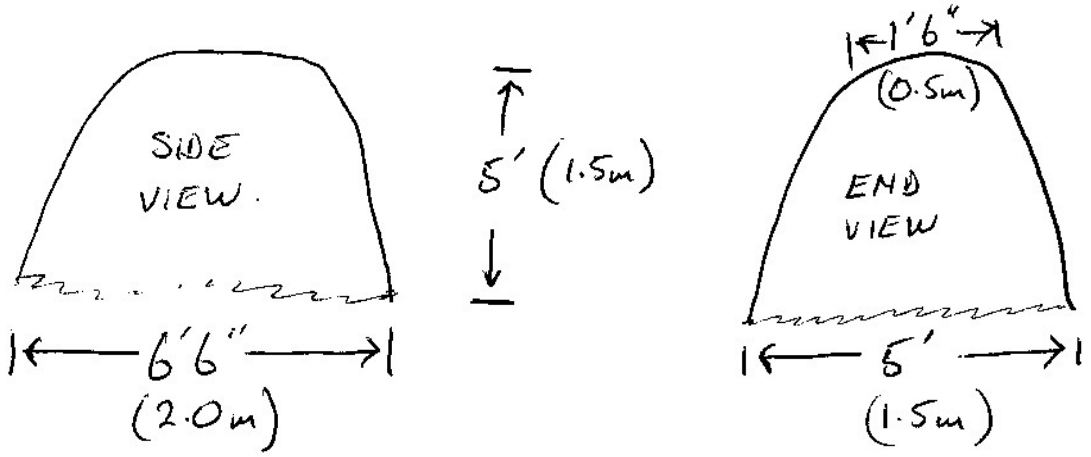
OK, so now you know a bit about why we need colloidal humus compost and it's wide ranging benefits. Let's cut to the chase and describe the steps you need to go through to end up with this supreme plant food.

I said before that good compost making is as much an art as a science. Part of the art is in combining materials that you either have on hand or have brought in.

Size Does Matter

The first point to note is that we collect the material separately and THEN make the compost heap all at the ONE time from what we have collected over time. This way we can carefully control the make up, size, moisture content, shape etc of the heap. This is crucial to get good compost. Building it in this way if done correctly will allow us to have an entire heap of beautiful humus when it's done. Not bits and pieces of various stages. We also need a certain mass of material to get best results. We are looking for a certain width and height. If we have more material we just build the heap longer. The absolute minimum size is around 1.5 cubic meters (about 1.6 cubic yards). This is the smallest for warmth retention and proper composting process.

The base dimensions of this minimum size heap are around 1.5 meters (5 feet) by 2.0 meters (6.5 feet) and 1.5 meters (5 feet) high. The shape is a cone shape like this:



This results in around 1.5 cu meters (1.9cu yards) of compost material to START WITH. Properly made compost will reduce by around a third to a half when finished. If you have more material then make the heap a little wider (up to 6 feet or 1.8 meters) and as long as you have material for.

Bear in mind that as you build the heap it will compress and you will need about double the volume of “loose” initial materials.

Moist colloidal humus compost, our final goal

The Materials

Almost anything that has lived can go into a compost heap. It all depends on the proportions. To achieve a good heating and successful composting the carbon material to nitrogen material ratio must be within an optimum range. Perhaps you already know this. You may have seen complex charts of what % nitrogen and carbon certain materials have.

Forget these. You will have more problems trying to work it out.

Basically any brown or straw like vegetable material, or woody material is higher in carbon. Any fresh green material you can say has more nitrogen. Manures you can say have high nitrogen (particularly chicken or bird manure as the urine is included in the manure too) as does blood and bone or meat meal.

Now to make good colloidal humus compost I would say that it is ESSENTIAL to have fresh animal manure as a major component of your heap. If you cannot obtain manure then it is possible to use blood and bone or meat meal but the results are less satisfactory.

Now all manures aren't good manures. The BEST compost is made with fresh cow manure from grass fed cattle. The cow has the most developed digestive system of any domesticated animal. The resulting manure contains around 30% of enzymes and microbes. This is extremely beneficial for our compost. I know it is hard if you are living in an urban environment to obtain manure, but the results are well worth the effort to get as much as you can. For convenience I myself travel around 50 miles each way to have a bobcat load my trailer with fresh manure from a cattle sales yard. Try to use about 30%-40% of fresh manure in your heap. If you can only get "old" manure then aim for around 50%. The rule of thumb is the fresher the manure the more carbon type of material you need to keep balance. This is where the "art" starts to come in. To judge what proportion of each of your available compost materials should be used in the heap. Now manures in order of preference are:

Cow, horse, sheep, goat, rabbit, poultry, pig

We want manure from a ruminant (multi stomached animal). Now I have seen some compost made with camel manure (another ruminant) that was almost equal to a cow manure heap.

Horse manure will provide more heat than cow manure and be careful not to use more than around 5% of poultry manure. It provides too much heating and doesn't give a good final colloid. Now other materials to use for the "carbon" material could be selected from……

Straw and hay, kitchen scraps, wilted weeds, autumn leaves (make sure they are not packed together), lawn mowings that are well aged (but not fresh as these are too "hot" and nitrogen bearing), sawdust (fine and not more than 5% of the heap). Don't use dust from treated wood. Actually all of your material should be chemical free. Not only will chemicals end up in your garden, they will also hinder the composting process. Particularly avoid horse manure from racing stables. You will find all kinds of stuff in that from all the vetinary drugs used.

Any minerals that you wish to add to your soil should also be included in the compost so they are incorporated into the humus colloid. These are such things as rock phosphate, seaweed (watch for heavy metals from polluted waters), rock dusts (great for a complete range of minerals), wood ash for potassium, lime or dolomite. Keep the proportion below 5%. These "extras" are not usually required and you can make some of the highest quality compost from just spoiled hay or straw and fresh cow manure. (40% manure, 60% old hay)

Mixing and Moistening Your Materials

Collect separate plies of materials over time until you are ready to construct your heap. At the time you begin to make the heap the materials need to be thoroughly moistened. This is **VITAL**. All materials must be thoroughly moist all through. The best test is the "wet sponge" test. Your materials should have the moisture content of a wet sponge. If you squeeze hard you can get a few drops of water from them. If your materials are too wet or too dry then the compost will not work properly. Too wet excludes air and will make the heap cold and smelly. Too dry and it will not take part in the composting process and remain in it's dry original form. As you construct the compost, mix the materials evenly and thoroughly together before placing on the heap. The more evenly mixed and the smaller the particle size of the materials are, the better the compost will be. It is OK to "layer" if you can't physically mix. But the layers must be a max of 1 inch so that all materials are in contact with each other. Pockets of the same material will not take part in the composting process.

Now I'll tell you how I do my mixing that I think is the minimum work for a good result. I place **thin layers** of each of the materials I am using for the compost into my builder's wheelbarrow. I then wheel the load over to the heap and tip it onto the heap. (when its higher I have a ramp I use to get to the top!). As I will describe later the shape of the heap is important and during the "arranging" of the materials with a fork or rake, the final mixing to an even mix of materials takes place in situ.

Evenly mixed fresh cow manure, weeds, kitchen scraps and straw made with the wheelbarrow method and all at the wet sponge moisture level

The Site

The site for your compost is important too. But first a little discussion about odor and vermin. A lot of people are reluctant to have an open compost heap in their yard due to perceived problems with odor, flies and other unpleasant factors. Let me assure you that once the compost heap is made in the way that I am describing here. A few days later (week at most) there will be **NO** odor (remember smell = nutrient loss) and the heap has a covering that does not attract any undesirable creatures (although birds will scratch it about in the final stage feeding on worms). So my point is that it can be quite close

to your house (or neighbors) without problems. So in selecting the site you need to look for a place sheltered from strong wind and has easy access to your garden. Some shade in summer too is desirable but not essential. Most important is a place that will not collect water. This will cause failure of the process. If no suitable site can be found drains can be dug around the site for better drainage of the soil. The heap should run N-S if possible to ensure even sun heating to both sides of the compost. Build the compost away from greedy tree roots. They will rob the humus from the heap. Eucalypts will run roots 100 feet or more to good compost. They know a good thing when they smell it! Silver birch, hazel and elderberries are OK to be close to the compost as they support the fermentation. If you have no site away from trees then the only solution apart from cutting trenches around the compost to cut the roots is to build your compost during fall when the trees are not feeding.

Site Preparation

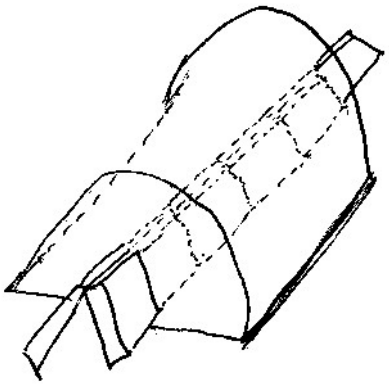
Our compost must be built on the soil surface to allow microbial and worm access. Also quite a bit of air can access the bottom of the compost from well structured soil. The compost will mature faster if this is so. All grass should be chipped off the site to allow soil contact. (the grass can be of course be put into the heap). Prepare an area that is larger than the expected compost size by about 2 feet all around. We now need to break up the soil that we have removed the grass from. This gives good drainage and air access as described before.

Building the Heap

Now one of the secrets to premium compost is even air access to all of the heap. If we build a compost of the min. size we are talking about, the weight of such a heap will be around a ton. The material in the middle of the heap will be compressed and air access will be severely lessened. So here's the secret.

We replace the central core of our compost heap with something that does not need to compost and will allow some extra air access into this region.

The best way to do this is with "books" of straw. Straw stalks are a bit hollow and don't pack down hard so we can make an air tunnel through the heap by stacking these books (from a straw bale) in an A frame that runs the long axis of our heap (and a bit beyond). Here's a diagram of what I mean.

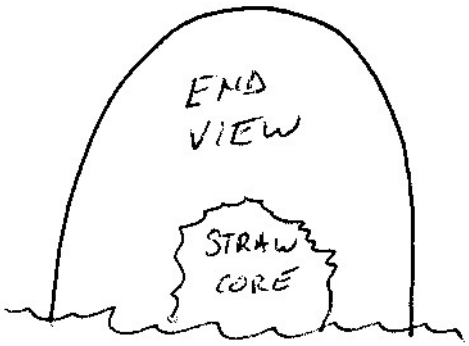


As you can see my art skills are focused on compost making not drawing!

What we actually have is an upside down **U** of compost over the straw tunnel.

Here's what it really should look like…..

We must ensure that the ends of our tunnel are not covered with material so that we get maximum air. As an enhancement to this method you can include some slotted agricultural drain pipes inside the straw tunnel too. The straw does pack down under the weight of material and the pipes will give extra air. You can also use bundles of sticks under the straw to hold it up and allow air in. Old wooden fruit boxes (if you can find any) are even better.



The Shape

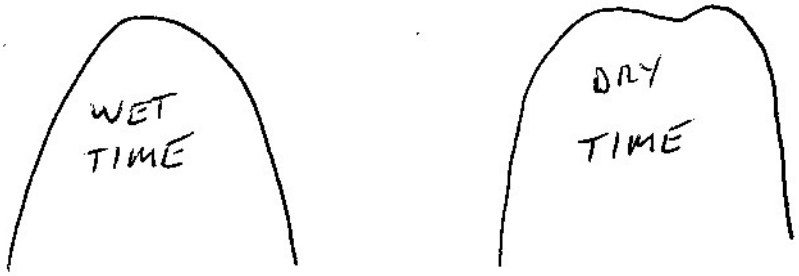
It is important to have the correct shape as you build the compost because:

1. It makes it much easier to stack on the mixed material and

2. If the heap is not the correct shape then it is possible for it to fall down as it composts and so destroy the environment of the compost "organism". Begin by putting material at the side of your straw A frame core to the width and length of the expected finished compost (remember we are aiming for around 5 feet high and the heap will pack to about a half of the loose raw materials). The minimum height is around 4 feet. Keep steep sides and a perfectly flat top (sort of like a box that grows in height) as you add material. Use a rake or fork to maintain this during the construction (which incidentally will take at least a day for someone on their own)

The light colored straw in the center is the central A frame.
See how the top has been kept flat and the edges are steep.

The finishing of the top depends on the season and your climate. The compost needs some rain or water if no rain, during it maturation. But of course the right amount. If building during a wet time of the year then make the top convex to shed rain. If in a dry time make it concave to collect as much water into the heap as you can. The heap will need almost as much rain or water as your garden beds.



If you get consistent heavy rain then a plastic covering can be used during this time to shed excess water. Only cover the top however and leave at least a foot at the bottom so that the compost still gets air. Remove the cover as soon as rain stops. During dry periods monitor the compost and make sure that the "wet sponge" moisture level is maintained under the covering (discussion of this covering later!)

If you find that you have used up all your compost material and the heap is still not high enough. Then take material from one of the ends and add to the top, making the heap shorter but higher. This will give best results for the material available.

A fully constructed heap. Note the straw core on the bottom right
(This contains a 7’ by 5’ trailer of fresh cow manure although it doesn’t look like it)

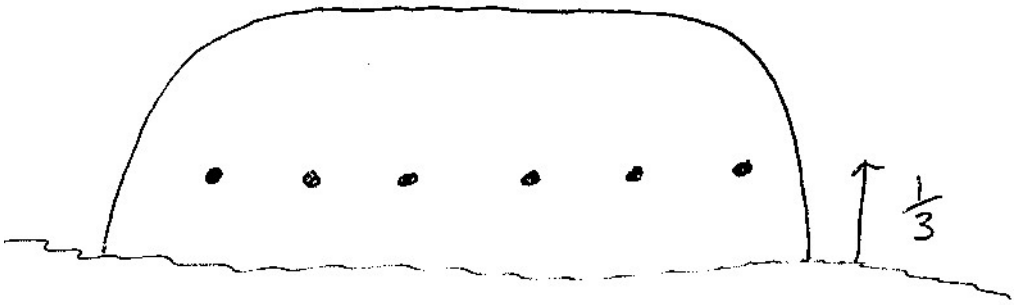
The Biodynamic Compost Preparations

To achieve the optimum colloidal humus the Biodynamic method uses 6 herbs specially prepared into special colloids that guide the fermentation process.

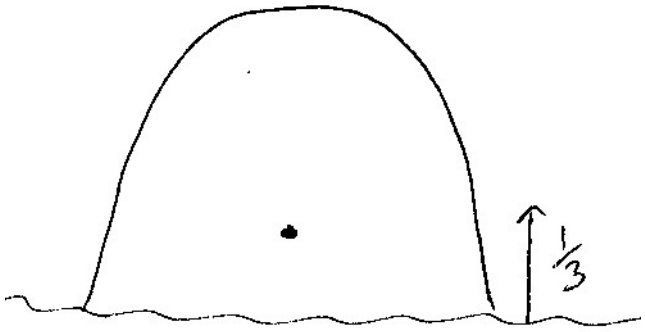
Without these preparations the techniques outlined here will still give very good colloidal humus. With the preparations the effectiveness of the colloid and effect of the compost is even further enhanced and we end up with exceptional compost.

I expect that most will not have access to these preparations but I will outline how to insert them correctly if you are fortunate enough to have access to quality colloidal preparations (these are available from Biodynamic organizations worldwide, although the quality and effectiveness varies depending on the skill and care of the maker).

The preparations consist of 5 special humus colloids and one liquid extract prepared from different herbs. One gram of each of the solid preps is sufficient for the minimum size heap described here. They are best described as activators of processes within the heap (and can be likened to organs within a body that have different tasks to maintain the health of the body). They guide the fermentation to optimum colloidal humus. They are inserted into the finished heap so that they are evenly spaced within the centre of the heap (about a third up is the centre of gravity of the compost).



Biodynamic Preparation Positions side view



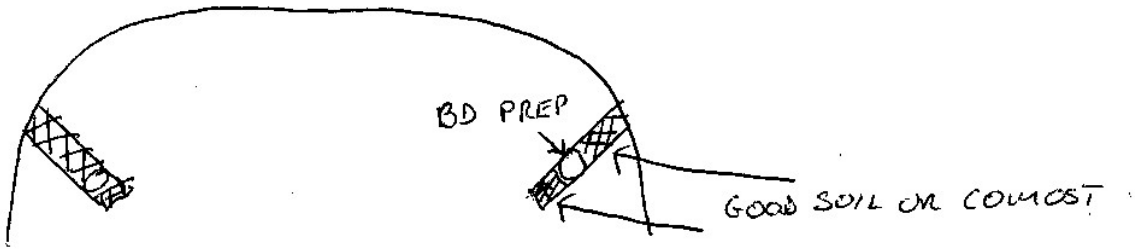
End view

To do this we poke arm sized holes into the heap from the sides and ends. We then insert some old compost or good soil as a “nest” for the preparations.

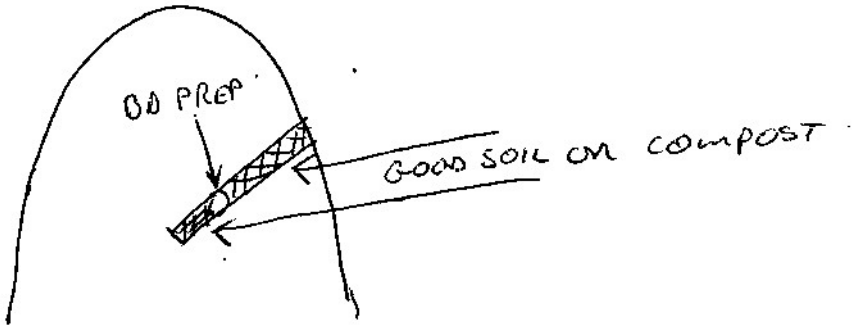
The preparations should be received from your Biodynamic association contained within a ball of good colloidal compost for protection from drying (dry preps are ineffective). Insert the “balls” into the holes and fill up the holes with compost or soil, making sure that there is no indentation so that water can run in. The preparations should be inserted within a week of making and immediately they are received. The sixth preparation is a liquid and is stirred in a special way for 20 minutes in one and a half gallons of pure water to activate it. (This prep is made from the juice of the valerian flower). Half of this stirred liquid is poured into the remaining hole and the hole filled as before. The remaining half is sprinkled over the rest of the heap.

The Valerian is stirred in 1.5 gallons of warmed (to blood heat) rain water in a stainless, copper or earthenware fully open top vessel (such as a stock pot or glazed bread crock). The water should fill only half of the vessel.

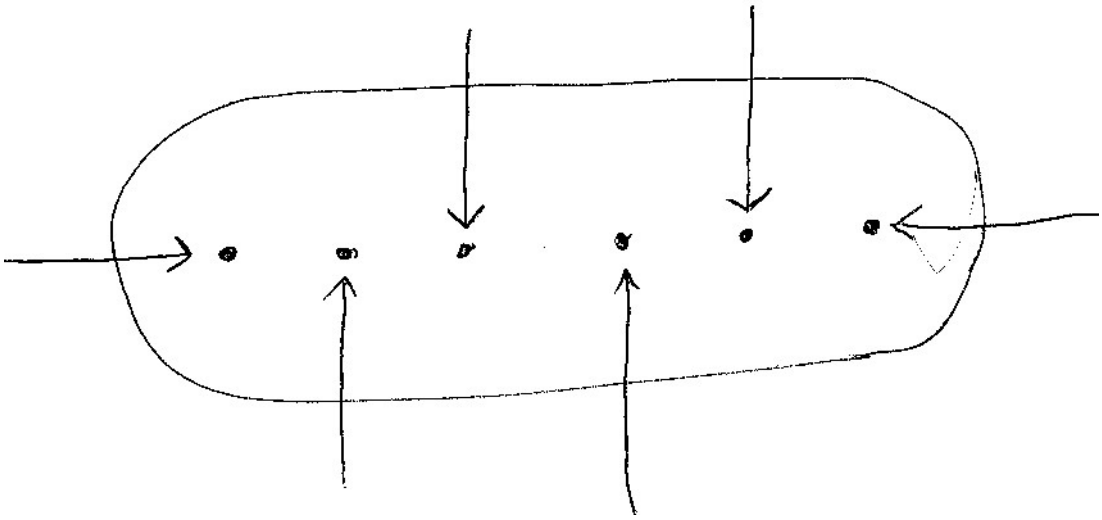
We then stir vigorously in one direction to create a vortex with steep sides and crater almost to the bottom. The direction is now reversed quickly by immediately starting a vortex in the opposite direction in the centre of the vessel. This creates a bubbling “chaos” until the vortex is established in the opposite direction. Repeat this action for the full twenty minutes in good rhythm.



Preparation insertion side view



Preparation insertion end view



Preparation insertion top view

The slanting holes are made from both sides and ends of the heap to place the preps evenly spaced in the centre of the heap 1/3 up from the bottom

If as is likely you don't have access to these preparations then a poor but still somewhat effective substitute can be made by including a handful of each of the raw material of the preparations distributed evenly throughout the heap.

1. Yarrow flowers
2. Chamomile flowers (German chamomile not Roman)
3. Dandelion flowers
4. Stinging nettle leaves
5. Oak bark (Quercus Robur)
6. Valerian flowers

The flowers should be picked (and dried for future use) while they are young and vibrant. Dandelion flowers should be picked just after opening before insects have visited (requires an early start).

Covering the Heap

We cover our heaps usually with more books of straw. Sort of like tiles.

Any other fibrous material that will allow air through well can also be used. It needs to be around 4 inches thick.

This covering is also essential for optimum results. It performs several functions.

It allows the composting process to use ALL of our precious materials. If the heap was not covered then the outside will dry out and not be converted to humus. When ready ALL of the material up to the cover is converted to humus. The other effect of the covering is to maintain even warmth.

It acts as an insulator to stop heat loss and to ensure that the whole compost is more or less at the same temperature all through.

Over time this covering will be “eaten” by the compost and may need adding to over time to maintain insulation and protection.

The same compost as before now covered

Monitoring the Compost

The compost should heat steadily over a week to a max of 120°F or 50°C. Best results are obtained at around 100°F to 110°F or 40°C to 45°C (a little warmer than animal blood). Any hotter than 120°F will be burning out nutrients and narrowing our range of bacteria species and quality of the final compost. Lower than around 80°F (30°C) and weeds will not be “steamed” to death. Also the whole composting process will take longer. The even temp

will gradually lower down to ambient temp. in about six weeks. It is a good idea to monitor the temp (especially for the first few heaps or if your material mix is not the same each time) so that you know exactly what is happening. To do this, obtain a spirit (red) scientific thermometer. Do not use a mercury filled one, as if it breaks then the mercury will be a hazard to you, your garden and your compost. You will also need some half inch copper plumbing tube. Crimp one end and insert this end into your compost to depth of about 18 inches and then lower your thermometer down this pipe on a suitable string or wire. Remove quickly after some minutes and read the temperature. A digital thermometer can also be used of course if it has a probe that can be inserted in the same manner.

What if it's too hot? What can I do?

If the compost gets too hot then there is too much "nitrogen" material like fresh manure, green weeds etc or the heap is too loosely packed. If you are building another compost in the future with similar material then add up to 10% of soil through the heap. This will slow down the fermentation.

To slow down an already made heap, remove the covering from the top of the heap and make a gutter in the middle of the length of the heap. Water this gutter with lots of water and monitor the temp a few hours later to see if it is coming down. The water does two things:

It physically cools the compost and it displaces air and the pockets that can contain air so that the fermentation is slowed. This process may need to be carried out a few times to get it under control. You will need to monitor closely for a few weeks until the temp starts to decrease.

On the other hand if your compost fails to heat up then you have it either too wet (excludes air), too packed (also not enough air) or there is not enough manure or nitrogen in the heap. It could also be that the materials were not mixed well enough or that they are too dry.

This is where there is no substitute for experience in the “art” of composting.

But mistakes are soon corrected and you will be turning out better and better compost with each heap. The site also matures as you make more and more compost on it also.

The same materials will compost quicker with a well developed “compost soil” underneath.

When is it Ready?

The optimum stage at which to get maximum effect and nutrient level is what we call 7/8ths digested. At this stage the whole heap is an even dark brown color and when you grab a handful of it you can easily mould it into a ball of that lovely rubbery colloid. The worms should be still active (which means it’s not quite all digested by them and there’s still stuff for them to eat). There could be maybe 20+ worms in a good handful. If you have made the compost correctly almost all of the heap will be at this stage (although the outside does finish a little faster). The central core may still not be quite as advanced due to less air as discussed before. It should be dark however. The other indication of the correct stage is that you should still be able to identify some of the original materials such as a piece of straw or maybe a leaf. It must be the dark brown humus color but if you take it and rub it between your

fingers it will disintegrate into the humus colloid. In effect there is humus in the original form of some of the ingredients. This is what we mean by 7/8ths digested.

The time taken to achieve this depends on many factors but it is usually from around 3 months (the quickest under the best conditions) to around 6 months. Longer through a cold winter.

Although the compost is not fully “finished” it will continue in the soil and stimulate much soil building and structuring bacteria as well as feeding our plants in a totally natural way.

This is the compost at around two and a half months. The worms have started but are by no means finished. You can see the excellent colloid forming however

Here is the compost still covered at the 2 and a half month stage.
The height has dropped by about a third from the original

How to Apply It

To maintain best results you need to keep this humus at the correct level of moisture otherwise the colloidal structure will be broken and the nutrients no longer held. If the compost is allowed to dry out, all you will have is a sort of soil like substance that is not colloidal and when moistened again will not regain the pliable colloid structure like the original. As Alex Podolinsky says “you can’t rehydrate a dead baby”. So to maintain the colloidal nature of the compost we must spread it over our garden beds and then turn it under by inverting the top few inches of the soil.
This will put it in the topsoil where it belongs and will protect it from the sun and wind. As you water your garden, you will water the compost too!
On grassed areas you need to apply in spring when there is soil moisture and rapid grass growth so that the compost is shaded and protected by the grass.

On areas of permanent trees and shrubs then it can be applied in a trench just beyond the drip line or applied on top of the soil and covered by a light mulch for protection. The feeder roots will rapidly “eat” it if in a growth time.

Use your compost from one end of the heap and cover again with your covering to protect the heap itself. The compost will remain in perfect condition for 6 months or more if it is kept covered and at the correct moisture level. The worms will mostly disappear as they have done their job, but the colloidal state will remain for about 12 months but will be declining somewhat.

18 month old compost that is still quite colloidal but is no where near it’s original state

Now I want you to review the whole process in your mind. Did I ask you to turn the compost?

Now this fact alone makes this unique method worth the extra initial care in it's construction. Correctly made from the outset and we will NOT have to EVER turn the compost heap.

Just make and use!

After nearly 20 years of making compost in his way I still find this quite amazing.

Please don't just take the attitude that "gee that's interesting". Please go out and make compost in this way. You will be greatly rewarded in many ways.

Can I make compost like this on a large scale for a farm?

Absolutely! Australian Biodynamic farmers have devised machinery and techniques for a one man operation to construct 30 to 40 yard heaps in a day. Currently I am aware of a farmer who makes over 1 kilometer (0.6 mile) of compost a year for his market garden and almond plantation. Highly effective professional Biodynamics at work.

If you are interested in large scale composting then there is a video available (sorry PAL format only) from Biodynamic Growing for $23 (around $16 US) Australian plus packing and post .
bdgrowing@dcsi.net.au

(Biodynamic Growing is a biannual magazine dedicated to Australian Demeter Standard Biodynamics. Overseas subscription is $22 Australian)

Biodynamics

The compost making outlined here is but a fraction of the complete Biodynamic method. As I said in earlier sections of this book, nowhere on earth has Biodynamics been as successful as in Australia under the visionary and highly practical guidance of Alex Podolinsky. Currently over 3 million acres of productive farming land is successfully under this method in Australia by professional farmers producing almost every imaginable farm product. The produce sold under the Demeter™ certification scheme is highly sought after worldwide by those seeking high quality, superb tasting, clean sustainably grown produce.
If you are interested in the Biodynamic method as practiced by these farmers (and gardeners), then a range of material from Alex Podolinsky is available. This material is the result of more than 50 years development of this method under harsh Australian professional farming conditions. Alex is currently engaged in revitalising Biodynamics in Europe to great success.

Recommended reading:

Biodynamic Agriculture Introductory Lectures Vol 1

By Alex Podolinsky

Gavemer publishing Sydney, Australia

ISBN 0 9590452 2 8

Agriculture of the Future

By Alex Podolinsky

Biodynamic Agricultural Association of Australia

ISBN 0 9577839 0 6

Living Agriculture

By Alex Podolinsky

Biodynamic Agricultural Association of Australia

ISBN 0 9577839 1 4

These are also available from the US Biodynamic association

http://www.biodynamics.com/books.html

Here are the contact details of some of the Biodynamic organizations worldwide.

The practices other than those of the Australian Demeter method cannot be guaranteed as effective as this professional method.

Biodynamic Agricultural Association of Australia
PO Powelltown 3797
Australia
Ph +61 3 59667333
http://www.demeter.org.au

Biodynamic Gardeners Association Incorporated
4A Fairleigh Ave
Beaumaris 3193
Australia
Ph +61 3 98428137

USA Bio-Dynamic Farming and Gardening Association Inc
25844 Butler Road
Junction City
OR 97448
USA
Ph +1 541 998 0105
http://www.biodynamics.com

UK Biodynamic Agricultural Association

Painswick Inn Project

Gloucester

Stroud GL5 1QG

UK

Ph +44 1453759501

http://www.biodynamic.org.uk

Biodynamic Farming and Gardening Association in NZ

PO Box 39045

Wellington

New Zealand

Ph +64 4 589 5366

http://www.biodynamic.org.nz

Demeter Standards Limited Ireland

Watergarden

Thomastown

Kilkenny

Ireland

bdaai@indigo.ie