PFEIFFER BD COMPOST STARTER
PFEIFFER BD FIELD SPRAY

Production now licensed to
The Josephine Porter Institute for Applied Bio-Dynamics, Inc.
P.O. Box 133, Woolwine, Virginia 24185, U.S.A.
TEL: (276) 930-2463
FAX: (276) 930-2475

Note: The **Biodynamic (BD) Compost Starter** and **BD Field Spray** contain all the Biodynamic Preparations, with the exception of "501" and "508."

The **BD Compost Starter** (Dr. E.E. Pfeiffer's formula) is available for practical use. It has proved its value in the hands of thousands of users over many years. The **BD Compost Starter** is a concentrated mixture of several cultivated strains of beneficial soil bacteria, enzymes and plant growth promoting factors. These bacteria have been isolated from the most fertile humus soils. Under the proper conditions of moisture, aeration and organic matter (see instructions) the **BD Compost Starter** will:

1. *Quickly decompose* raw organic matter and wastes by breaking them down into simpler compounds.
2. *Re-assemble* these simple compounds into complex lasting substances known as *humus*.
3. *Fix nitrogen* from the air and otherwise make it available.
4. *Increase the availability* of minerals in the soil and transform unavailable minerals into their available form.
5. *Hold the soil* and improve its structure.
6. *Prevent leaching* and washing away.

Humus is the result of the breakdown and transformation of raw organic matter and wastes by the proper combination of soil bacteria. *Help nature to produce humus*. The benefits of compost made humus include:

Improvement of the soil structure.
The soil is easier to prepare and cultivate.
Water is more readily absorbed and penetrates deeper.
Soil drainage is improved.
Root growth is stimulated.
Absorption of nutrients is facilitated.
Nutrients in compost are preserved and made available.
Soil microlife is fostered and maintained.
Nitrogen release is steady and without losses.

HOW TO USE THE BD COMPOST STARTER

Special instructions are available based on many years of experience. We have instructions on:

Small compost pile for home and garden.
Manure piles for farm.
Treatment of manure in the dairy barn.
Treatment of manure in the loafing barn and pen stable.
Treatment of muck and peat.
Treatment of poultry manure.
Treatment of water hyacinths.
Treatment of sawdust.
Treatment of industrial wastes (coffee, tea, cocoa, bagasse, cachaza, etc.)
Treatment of sewage sludge (drying beds).
Treatment of night soil, for conditions in the Far East only.
Industrial application for the processing of city wastes and garbage.

HOW MUCH **BD COMPOST STARTER** SHALL I USE?

The answer to this question is simple. For all materials to be composted measure: *1 unit per each ton or 1½ cubic yard of raw materials.*

You order in units giving us the weight or volume of materials you want to process. One (1) unit weighs about 1 ounce, net.

In cases where only the surface is known such as in loafing barns, on sludge drying beds or using the **BD Field Spray** the unit is figured in proportion to surface and depth. Please consult with us.

WHAT IS THE **BD FIELD SPRAY**?

The **BD Field Spray** contains organisms and enzymes similar to the **BD Compost Starter**. It is sprayed directly on the land in order to break down green manure, sods, stubble, trash. It is used immediately prior to plowing or disking under. It aids in the fast decomposition of these materials. It prevents the tying down of the much needed nitrogen. Its unit is calculated per acre. Special instructions for the use of the **BD Field Spray** upon request.

HOW LONG DOES THE **BD COMPOST STARTER** KEEP?

If the package is undamaged, kept cool and not exposed too long to direct sunlight, it will keep six to eight months. The starter should be protected against excessive air moisture and should not dry out. Therefore you can order now and use later.

The **BD Compost Starter** *is not harmful* to any plant, animal or human living tissue. It will only decompose materials separated from living organisms. Dogs love to eat it and thrive on it. That shows how harmless it is.

DOES THE **BD COMPOST STARTER** WORK AT WINTER TIME?

Cold and freezing temperatures will somewhat slow down but not prohibit its actions. Compost piles in the initial phase of fermentation will heat up and continue to ferment even in wintertime. Frost will not penetrate below the surface layer on larger compost piles during the fermentation.

The **BD Compost Starter** is for all-year-round use helping and speeding nature's work.

If you have any problems not covered by our instructions do not hesitate to contact us. We shall be glad to take care of them.

TO ACTIVATE FOR USE:

Moisten the measured amount you need for the next day with tepid water, mix well and let stand in a warm place, for 12 to 24 hours. Then dilute with water to the required amount for spraying. The amount of water depends on the delivery rate of your sprayer, not the units of the **BD Compost Starter**.

Spray while building the pile or mixing the materials. Do not activate more than is to be used the next day. Moistened **BD Compost Starter** will keep unchanged only a few days.

If chlorinated water is to be used let it stand preferably in sunlight, for a few hours prior to use. Follow instructions for building the compost pile or the use of the **BD Field Spray**.

The **BD Compost Starter** was screened through a No. 35 screen.

materials high in cellulose and lignin content in general. Loosely piled materials with air spaces between the particles will provide the best breeding conditions for soil organisms which break down the raw materials under heat development. There is also another type of fermentation, which goes on at lower temperatures between 56° and 120° F. This fermentation is somewhat slower but leads to an excellent product. It is this kind which usually takes place in a garden and farm compost pile containing a large percentage of soil. One should not be disturbed if the home garden pile does not heat up so much.

LIMING:

If lime is to be added, which is not always necessary, we recommend the use of dolomitic lime. If this is not available locally, a good agricultural lime will do. Very little, if any, will be necessary and under no conditions more than 100 lb. per ton of raw material. The lime can be sprinkled on the layers or mixed with the materials. If the compost is to be used for rhododendrons, azaleas, or other acid loving plants, no lime should be added.

LENGTH OF FERMENTATION PERIOD:

The fermentation period will depend more or less upon the type of materials used, the size of the particles, moisture content, size of pile, climate (summer or winter), etc. Some materials decompose more slowly than others. If the materials are ground up and thoroughly mixed, the fermentation process should be complete within 3-8 weeks. Otherwise it will take longer. The pile can be turned after a few weeks and sprayed again with the BD Compost Starter solution. Shredded or ground up materials will not need turning. During extremely cold and freezing temperatures the action is slowed down somewhat but not otherwise impaired.

THE FINISHED PRODUCT:

We are frequently asked when compost is ready for use and what it is like. The following can be a guide. The odor should be one of freshly plowed soil or soil found in the woods beneath trees. A slightly musty odor is not objectionable. Old leaf mold has a very characteristic odor, indicating good fermentation, which is similar. There should be no putrid odor.

The structure of the original material should have disappeared. Sometimes straw, wood, fiber or other particles may still remain but can easily be broken between the fingers. In this condition they will fall apart quickly in the soil. Any large pieces that have not completely decomposed can be added to the next pile for further decomposition. Summing up, the finished product should be dark brown to black in color, crumbly in texture, and have a so-called "woodsy" odor. Finished piles will keep a long time provided the moisture content is very low and they are covered.

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INSTRUCTIONS FOR BUILDING A COMPOST PILE WITH BD COMPOST STARTER

Generally the materials for "small" compost piles are not put through a grinder or otherwise macerated as in the case of large composting operations. If no grinding is possible, compost piles can be built by hand in *thin* layers, alternating the materials in each layer. However, the smaller the particles, the faster the fermentation. Grinding the materials will definitely shorten the period of fermentation, while the ungrounded materials will take a longer time, depending upon the size of the particles and the thickness of the layers, as it will take the Starter solution more time to penetrate. The following steps should be observed in building compost piles:

MATERIALS:

Any organic materials, such as kitchen garbage, lawn cuttings, garden refuse, manure (any kind, but avoid cat or dog manure in compost intended for edible crops), leaves, weeds, etc. can be used. When pulling weeds for a compost pile it is well not to shake the soil from the roots, as some soil is necessary in the pile. Also paper can be used. While paper does not add to the quality of the compost, it does improve the structure. The paper should be shredded or crumpled and not laid in sheets. Materials of any length or thickness, such as straw, hay, stalks, tall weeds, corncobs, corn stalks, etc. should be chopped or shredded if fast fermentation desired.

LOCATION OF THE PILE:

It is advisable to build the pile in the shade or semi-shade so that the direct sunlight will not dry it out. However, if a shady spot is not available, the pile should be protected from the direct sunlight by covering it with a layer of soil, hay, straw or leaves. In any case it is well to cover the pile. It can also be built near the edge of the garden where the finished product will be readily available. *There should be no obnoxious odor if the pile is properly handled.*

PREPARATION FOR BUILDING THE PILE:

The pile should be built on *bare soil*, not on vegetation. All sod and vegetation should be removed, together with the top foot of soil in order to make a shallow pit. This soil can be used later for covering the finished pile or for interlaying or mixing while the pile is being built. In warm dry climates the pit can be deeper than one foot to preserve the moisture.

BUILDING THE PILE:

Either of two methods can be used in building the pile.

1. IN LAYERS: Each layer in this method should be *thin, not more than two inches thick.* This is important in order that the BD Compost Starter solution can penetrate all of the material in each layer. The first layer may be garbage, spread over the prepared soil in a two-inch (or less) layer. If there is not enough garbage, other materials can be added to complete the layer. Each layer should be sprinkled lightly with soil (any kind). The BD Compost Starter solution should then be sprayed over the entire surface of the layer. The pile can be built in this way, alternating the materials in each layer, sprinkling with soil and spraying with the Starter solution. If a layer is to be of soil only, it should not exceed 1 inch in thickness; leaves and grass cuttings should be less than two inches as they tend to cake.

EACH LAYER SHOULD BE SPRAYED WITH THE BD COMPOST STARTER SOLUTION.

Several layers can be built at one time or a layer added each day. If there is an interval of more than one day between the buildings of layers, *fresh Starter solution should be used.* Once the BD Compost Starter is re-activated, it should be applied within 24 hours. When the pile is completed, vertical holes can be made with a crowbar, or similar instrument, into the pile at varying lengths, about 1 foot apart in checkerboard fashion, and each hole filled to the brim with the Starter solution. In this way the starter solution will seep into the pile in all directions, insuring thorough inoculation with the potentized biodynamic preparations. The pile can then be covered with a layer of straw, hay, leaves, etc.

2. BUILDING THE PILE BY MIXING THE MATERIALS: If a stockpile of leaves, lawn cuttings, weeds, manure, etc., is available for composting, the materials should be mixed together thoroughly, 15 to 20% soil (by volume) added, and sprayed with the Starter solution while the materials are being mixed. If a cement mixer is available it will serve the purpose very nicely, or any other similar equipment. Mixing the materials on the ground with a shovel, shoveling back and forth (or with a hoe) until they are well mixed will also do the trick. The idea is to *see* that the materials are well mixed, soil *added* during the mixing, and the *BD Compost Starter* solution sprayed into the mixture. The materials are then ready for the pile.

SIZE OF THE PILE:

The "critical maximum" size of a pile is 5 feet high and 12 feet wide, since aerobic conditions are considerable reduced in the core of a pile larger than that. The pile can be as long as desired. Dry loose materials may be piled up to the upper limit of 5 feet height, but wet sticky materials should be kept to the lower level of 3 feet in height, here also 9 feet width is preferable.

Small piles 3 to 4 square feet at the base usually do not heat up as well as larger piles. They dry out easily, freeze more quickly, and in general do not always work successfully, especially in regard to the time of fermentation. Small piles need more attention in connection with moisture control and they should be well covered. They are not representative of the type of fermentation, which goes on in the larger piles. Summing up, the minimum height of a pile should be 2 to 3 feet, maximum height 5 feet, and the maximum width at the base 12 feet, with slanting sides. Within these proportions proper fermentation can take place.

DILUTING THE BD COMPOST STARTER:

The water for diluting the re-activated (moistened) Starter is used primarily for the dispersion of the potentized biodynamic preparations in the suspension as well as for moistening the materials to be composted. In general, 2 to 5 gallons of water are sufficient for diluting one unit of Starter for 1 ton (1½ cubic yards) of compost material. However, more water can be used if the material is especially dry. The important thing is to see that all the compost material is thoroughly penetrated by the solution. Each layer of the pile, if it is being built in layers, should be well saturated. If the pile is being built by mixing the materials, enough water should be used to saturate all of the materials as they are being mixed. The solution should be constantly stirred or agitated during the spraying to assure an even distribution of the potentized biodynamic preparations within the Starter. *The amount of water to be used does not depend on the quantity of Starter, but on the rate of delivery of the spraying equipment.*

MOISTURE CONTENT OF THE PILE:

Moisture is very important for proper fermentation. The ideal moisture content of the pile is between 40% and 60%. The pile should not be allowed to dry out below 30%. Water should be added if it becomes too dry. On the other hand, the pile should not be soaking wet. If dry materials, such as corncobs, weeds, straw, hay, sawdust, etc., are used, the materials should be well moistened before the pile is built or while it is being built. This can be done by soaking the materials in a pit until they are well moistened.

According to our observations, water sprinkled over the surface of the pile will penetrate only about 1 foot beneath the surface. When the pile dries out the surface becomes caked, thus excluding the air. Therefore we recommend that you attach a ½ or 1 inch pipe (2 to 3 feet long) to a hose, thrust the pipe down into the pile and fill with water so that it can penetrate and filter into the pile in all directions. These holes can be made in an overall checkerboard fashion 1 to 2 feet apart according to the size of the pile.

HEATING UP OF THE PILE:

Temperatures between 120° and 140° F, are easily reached in a well built and covered pile amply supplied with moisture and air, provided the pile is large enough to generate heat. In small piles of only 1 or 2 cubic yards the conditions are not favorable for heating, especially at low outside temperatures or when the material is too wet. A pile needs a certain body or mass in order to heat up. Piles that are soaking wet do not provide the inner "atmosphere" to make a pile "sweat." This sweating atmosphere is essential in piles containing straw, sawdust, dry weeds, i.e.,

Using the Pfeiffer BD Compost Starter in the Home Garden

(adapted from John and Helen Philbrick's *Gardening for Health and Nutrition: An Introduction to the Method of Biodynamic Gardening*)

We have used the Pfeiffer BD Compost Starter purchased by mail for our biodynamic compost heaps. We usually order several packets at a time and have them on hand for building compost heaps both in spring and in the fall. The starter is dehydrated and does not have to be refrigerated.

These are the directions we follow if we are building a pile all at once: the evening before starting to build the compost heap, we put three tablespoons of starter in an old cup. We then add non-chlorinated water, a little at a time, stirring until the starter is moist but not wet. This is allowed to stand overnight. Next morning the cup of starter is diluted in several gallons of water and this is sprinkled on the compost with every layer. We use a whisk broom to sprinkle the water so that it is thoroughly distributed in fine drops throughout the heap.

How to Build a Compost Heap

Usually we have several compost heaps in progress, some of which are built up little by little as we add materials every day or two. We also build one or two heaps which are completed in one day. We always try to get the job done as quickly as possible, but it takes several hours to construct one large heap. All the materials are assembled, and we have the Pfeiffer BD Compost Starter prepared the night before. Dressed for the job we gather wheelbarrow, hoes, shovels, pitchforks, and whatever else will be needed, including a hose if the weather is dry.

The word "heap" may give a false impression. To be at its best, compost should not be thrown together in haphazard fashion, but should be laid down carefully in well-planned layers. First decide how large the heap is to be. We have found six feet by ten feet a good dimension. Dig the space to the depth of the shovel, keeping the dug-out soil in a pile at one side where it will be available for covering later. Build the first layer of some heavy material next to the ground. Hard weed stalks of tough weedy brush lift the pile somewhat from the earth and allow a little drainage of moisture and circulation of air.

The layers are built up, repeating the same sequence over and over, until the pile is about four feet high.

This is the sequence of the layers:

1. *Three to six inches of straw, leaves, weeds or other vegetable material.*
2. *An inch of hen manure, barn dressing (the urine-saturated straw which was used for bedding the cattle is also considered as manure).*
3. *An inch or so of topsoil, depending on the texture of the soil—more if it is sandy, less if it is heavier with clay.*
4. *A very fine sprinkling of lime.*

The moistened Pfeiffer BD Compost Starter dissolved in water is sprinkled on each layer in order to distribute it evenly. Although the amount seems insignificant, the bacteria are powerful and will multiply by the billions as the compost ripens.

Layers 1, 2, 3, and 4 should be repeated, building each layer slightly smaller than the one below it to make the sides of the heap slope inward toward the top. The layers should be built up to a height of four feet with sides sloping slightly inward and the top flat or slightly hollowed.

The top is slightly hollowed out to form a trough running the length of the heap to catch and hold the rain and the snow. Every two linear feet of a heap of this size will represent approximately one ton of finished compost. If the heap is about four feet high when first finished, it will shrink to about one and one half or two feet when it is ripe. The outside of the heap should be covered with a thin layer of earth which forms a skin and protects the heap from drying out too fast. Experience with the kind of soil in your garden can tell you exactly how thick to make this skin. If it is too thin, the wind will evaporate the moisture through the skin and the compost inside will dry out. If it is too thick, it will be too heavy and in a wet season the compost inside will remain wet and soggy. In a hot, dry, windy climate it may be necessary to cover the heap with straw or hay or even cornstalks to insulate and keep it cool and moist inside. In a dark rainy season it may be necessary to punch holes with a crowbar to let in the air. Only actual experience with the feel of well-made compost will tell what it needs. But observation is a good teacher, and one learns quickly to recognize the conditions and to know what to do. If the compost pile feels springy when you step lightly upon the edge, it is probably in good condition, fermenting inside and carrying on its own life through the action of the living bacteria within.

These directions assume that you have collected piles of materials and that you build the compost heap all in one day. It is also practical to build up one end of the pile and add to it every day as table scraps and lawn clippings come to hand. If some lime and earth are kept nearby, they can be sprinkled on each layer of garbage, the lime first—but very sparingly—and the earth last to make sufficient covering to keep dogs, mice, and flies away. Using Pfeiffer BD Compost Starter in a pepper shaker and adding it to the garbage as it leaves the kitchen, renders the materials inoffensive almost immediately and uninteresting to dogs. The latter will not trouble a compost heap once the process of fermentation is under way. If necessary a large piece of poultry netting covering the heap will keep dogs and hens from scratching in it. If it is built up day by day, it is especially important to see that the layers are damp when laid down and that it does not dry out completely before it is finished. It is better not to have to soak it with water after it has dried out.

If bacterial starter is not used, fermentation will still take place, but it will be haphazard and may not completely permeate the heap. In such a case the temperature of the heap may rise rather high at first (124-150 degrees F), but it will cool down later. If such a heap seems to be standing still and not decomposing fast enough, it may be turned with a pitchfork. The exposure of the interior to oxygen speeds up the process of decomposition, but it may also cause too much combustion and burn away much of the goodness in the heap. If the heap gets too hot, it may be cooled down by wetting with a hose.