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EXCESS POULTRY MANURE?

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Poultry manure that cannot be spread on nearby crop fields is a problem. In addition to its bulk and moisture content, it can be a nuisance, causing odor, fly, and rodent problems. Composting is an alternative that will help utilize poultry manure. Composted manure is drier and has little odor and less volume than "raw" manure. Compost is produced when rich

organic materials, such as poultry manure, are aerobically decomposed, or aged. This process, called composting, results in a stable, reasonably inoffensive, humus-like material.

The primary ingredients necessary for successful composting are carbon, nitrogen, moisture, air, and enough material to allow heat build-up in the compost pile or vessel. Parameters usually given for successful composting are:

Carbon/Nitrogen ratio - 20:1-40:1; Moisture - 40-65%; Temperature - 110-150 degrees Fahrenheit; Particle size - 1/8 - 1/2" to provide a loose fluffy pile. Poultry manure can vary from

high-nitrogen, wet cage layer manure to low-nitrogen, dry-caked broiler litter. Like most farm manures, it requires the addition of a carbonaceous bulking agent such as wood chips, sawdust, straw, or cornstalks. This material acts both to provide additional carbon and to increase pore space in the pile. Waste paper, cardboard and kraft bags, while they offer little structure, can be used as a carbon source.

As microorganisms begin breaking down organic material, they generate heat. Heat is lost through the sides of the pile and in air that flows through the pile to provide oxygen for the bugs to live and work.

The activity of the bugs can be determined by monitoring pile temperature. Monitoring temperature daily and comparing it with temperatures from previous days will give an idea of what is happening.

Under ideal conditions, the temperature will rise very rapidly in the first few days and then stabilize around 140 degrees for 2 to 4 weeks. A gradual decline in temperature may indicate that the pile is becoming less active. Temperatures will also go down if the bugs

have run out of air, the pile has become too dry, or there is not enough material to decompose.

Increasing aeration with blowers or by mixing and stirring the pile should cause temperatures to rise again. If the pile is too dry, water must be added to help bugs break down large organic particles. If a pile is poorly mixed, the carbon and nitrogen sources may not be close enough together for the bugs to utilize both. In this case some bugs will get a diet rich in nitrogen while other bugs will get a diet too rich in carbon.

Growing composting bugs is like raising chickens: You need the right conditions. Under conditions of high activity and low air supply, the bugs can get too hot and start to die off. To help control excess heat, increase aeration.

It's easy to get started composting poultry manure. All you need is a reasonably dry site away from runoff, a front end loader, some dry carbonaceous material to mix with the manure, and time and interest. A good-sized truck load of manure should make a large enough pile to contain heat. Mix

the poultry manure and bulking agent until you get a material with the consistency of damp silage or wet hay. Do not drive on or into the pile, rather shake the material out of the bucket onto the pile so it stays fluffy. After three or four days, dig into the pile; if steam emerges, things are working. If you get a strong ammonia smell, you have not added enough carbon.

Turn the pile and check it again in a few days. A thermometer that can measure temperatures 1-3 feet into the pile is helpful. To compost large amounts of material regularly, you need to develop an environmentally sound composting area and may wish to use a compost windrow turner. Or you may decide to invest in an aerated static pile or bunker-type facility.

Three fact sheets about composting are available from your county Penn State Cooperative Extension office, or write to me, Dr. Bob Graves, 244 Agricultural Engineering Building, University Park, PA 16802-1909.

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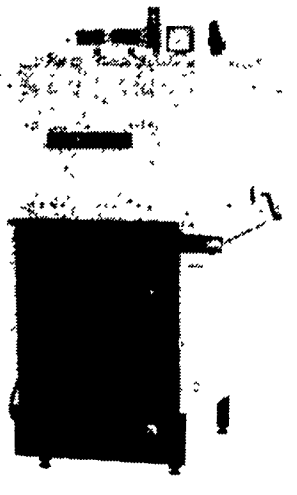
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