

## Managing Manure, the Environment and Reaping Rewards

**M**cPhee Farms Inc, owned and operated by William (Bill) McPhee in Kindee, MI raises 1800 replacement dairy heifers. Five years ago, concerned with the Concentrated Animal Feeding Operations (CAFO) regulations going into effect in 2006,

Bill was looking for a way to manage the manure from his operation.

Like many others in the dairy industry, Bill looked to composting as a way to better manage his manure. "Our original intent in composting was so we could spread manure in the winter time when the ground was frozen," says Bill. "The rules have since changed here in Michigan, but composting has made such a big difference in our operation that we continue to do it."

Bill says they have had a reduction in manure volume by at least 60%. There is



Bill McPhee, McPhee Farms Inc., Kindee, MI composts the manure from his 1,800 replacement heifer operation.

Governmental loans and grants, such as "319 funds" may be available for equipment purchases used to meet the new CAFO regulations. Contact Brown Bear Corporation for more information.

significantly less manure that needs to be handled. "Composting has also decreased the amount of smell coming from the manure. The neighbors don't like anything that smells," adds Bill.

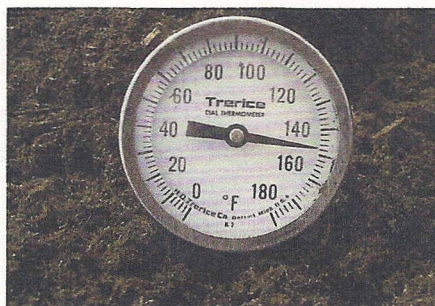
McPhee Farms uses a Brown Bear Composting unit to compost their manure. Pens are cleaned twice a week and manure packs every two weeks at the farm. All the manure is collected and taken to the compost area, or pad. In the winter months, from December to April, the material is stacked to be composted when it warms up.

A combination of leaves and straw is used for bedding at McPhee Farms. Bill collects the leaves, for no cost, from the local dump, where the city hauls them after sweeping them from the streets. Leaves and straw are incorporated into the compost pile after being used for bedding.

Composting begins as soon as waste materials are piled together. The initial creation of windrows introduces enough air to start the composting process. Aeration or turning of the windrows is continuously needed to supply oxygen to the microorganisms decomposing the material.

McPhee Farms uses their Brown Bear composting unit to turn the manure 3-6 times over a 2 month time period. "As soon as we turn the manure 2 or 3 times all the nitrogen and nitrates are locked into the manure reducing the risk of leaching nitrates into the soil," says Bill.

The Brown Bear unit makes it's own windrows, eliminating the need for extra equipment. In addition this allows for more compost in a smaller area. McPhee Farms uses a 5-acre area to compost, but hopes to expand their composting operation and



Temperatures inside the windrow will reach 120-140°F.

increase to a 12-acre composting pad in the next year or two.

Temperature is the key indicator to know when the material is done composting. The compost heats up as a result of the microbial activity. The temperature inside the windrow will range between 120 - 140F. The material will stay at this level for several weeks. As composting slows, temperatures will drop. A dial thermometer is used for monitoring windrow/pile temperatures.

After the composting process is finished the material produced is sterile and pathogen free. The material is composted at such high temperatures, that weed seeds are not allowed to germinate, eliminating the spread of weeds.

"Compost is much better for the soil. The manure is already broken down into hummus. When straight manure or raw manure is spread on the land it has to go through the biological process of breaking down, when composted manure it's already done before it even hits the soil," states Bill.

McPhee Farms spreads their composted material on 1,300 acres they rent to grow hay and straw. Less Nitrogen is likely to be leached into the groundwater because the material spread is composted. Composting converts the nitrogen content in the manure into an organic form, which is more stable. Compost can be used as a supplement or replacement for chemical fertilizers.

Any remaining compost is sold for fertilizer to growers in the area for \$20 dollars per ton. "There are several no-til-



Composted material can be used as bedding for cattle.

lers in the area who buy compost from me to correct problem spots they have in their fields," says Bill. "They come back every year to purchase more, because compost makes that much of a difference for them. They've even tried straight manure, but they keep coming back." Bill says they haven't pushed the product to nurseries as of yet, but it's a nice extra when they come and purchase the compost.

Another added benefit that Bill has seen is his ability to use his Brown Bear in the corrals and pasture. "It can get very wet here after the snow melts or rainy weather," says Bill. "We run our Brown Bear composter through the bedding packs 4 - 5 times and they dry right out." He also adds that his bedding packs are 3-4 feet deep in the winter time.

Looking toward this coming spring, Bill says he is very thankful for his Brown Bear. They are going to be cleaning out their pastures and removing the manure packs which haven't been moved in 5 years. "Normally it would be very difficult to get them out, but with the Brown Bear we'll run through them, loosen them up and it will be a lot easier," he adds.

Bill says that he is planning on utilizing part of their compost as a bedding source in the near future. "It's very much like bedding with sawdust, which is great for animal comfort," notes Bill.

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