

Date:  
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# A New View on Cow Poo

*“ If it smells like shit,  
It probably is.  
If it smells like soil, you are  
on the right track,”  
Rick Kantz,  
Fort St John*

### Contacts:

Rick Kantz  
(250) 785-1135

Bill Wilson  
(250) 782-2866

Sandra Burton  
(250) 789-6885

Julie Robinson  
(250) 787-3241

### Original Objectives

Maximizing the benefits of manure and its nutrients is a major part of composting. This project was started to demonstrate effective ways to help farmers manage manure and compost in order to achieve maximum benefits. It is also to demonstrate new technology available for composting and spreading manure, to develop techniques for using this technology, and to work out systems for monitoring and altering the compost rows.

Rick Kantz’s initial objective was to reduce the manure volume, and therefore the handling and spreading costs. Later on in the project, however, he also started wanting to know which material worked better for composting: the scrapings from the pens, or the bedding pack with more straw. All in all, as with most projects, we are trying to find out what works and what does not.

Bill Wilson feels that with traditional methods of manure handling a lot disappears. He would like to find a cost effective method of capturing more of the manure’s nutrients and getting it into the fields.

**Location:**  
Bickford Farms

### Compost Materials Available:

- ⇒ **Pen scrapings**  
(material in the area where the cattle have been walking or standing around)
- ⇒ **Bedding pack**  
(material in the area where cattle have been laying down, mainly under roof)



Cross section close-up of static manure pile



Cross section close-up of turned compost manure pile

### The Demo Sites

Our first demo site is in cooperation with Rick Kantz of Bickford Farms. The cattle feedlot there provides an ample amount of compostable material. At the site there are three static manure piles of varying ages that are from Rick’s earlier methods of manure handling. Since then Rick had started putting the manure into windrows that can be turned easily. To date there are 10 of these windrows at this site.



Compost rows at demo site at Bickford Farms

Our second demo site will be at Bill Wilson’s feedlot operation. He formed a number of windrows when his pens were cleaned in the fall of 2007, and will create some newer windrows just before the turner arrives.

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Box 2229  
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V0C 1J0

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## Methods

### Windrowing

Materials are put into “windrows” of appropriate height and length by hauling to the desired spot and forming the row using a tractor, loader, and/or small cat. This is to optimize the composting process and for easy turning. As the rows shrink they can be pushed together.

### Sampling

Once our windrows were formed we took a composite of 12 samples from each of 5 windrows. We used a soil probe to get an integrated depth sample. These samples were then sent to two different labs. The first, Soil Foodweb Lab, did a soil biology analysis. The second, Pacific Soil Analysis, did a soil nutrient and C:N analysis. These samples are now our base starting point to which later samples can be compared.

### Temperature Monitoring

The temperature of the rows must be monitored in order to keep an optimum temperature range for the microbes to work in. Ideally the row temperature should be above 55°C for a total of 15 days in order to

inactivate pathogens within the material. It should also always be kept below 70°C or the microbes will be inactivated. We use a temperature probe to find the internal temperature of the rows, and temperatures are usually taken twice a week. Our probe is a TIP TEMPERature Product Type K Thermocouple.

### Turning

When the row is too hot or needs to be heated up it is turned. Turning the compost row is done to alter the temperature and mix the material for more even processing. When the row is turned carbon dioxide is let out and oxygen is incorporated in to encourage decomposition and nutrient stabilization by micro organisms.

### Spreading

Once the decomposition process is complete the compost will be spread onto the field(s) using the Lowlander 75 manure spreader. The vertical beaters of this spreader create a more even application with less clumping.



Aeromaster PT120 compost turner in action



Lowlander 75 vertical manure spreader demonstration at the 2008 Forage summer tour

**More Forage Facts related to compost available online: [www.peaceforage.bc.ca](http://www.peaceforage.bc.ca)**

## What we've learned so far

Rick learned a trick about windrow spacing planning. He found that if you position two rows close together, and then on either side have a tractor width space so the turner can be pulled through the row, it is much easier to combine the piles once shrinkage takes place.

We, the researchers, have learned that adding straw to a row to adjust the starting C:N ratio may be necessary with some starting materials. Ideally C:N ratios should be 15 to 30:1 to launch an efficient decomposition process. Our summer students, Kim and Vicki, had no prior knowledge about compost before they started working on this project, so it had been a great learning curve for them.

## Looking to the future

We still want to investigate the effects of different starting material and understand the effects of timing in this process. We have found that the bedding pack with more straw seems to compost the best. Once the composting process has been completed we will start applying it to some of Rick's fields, where we will be monitoring results and changes from the addition of the compost.

Watch for more results from this project in future Forage Facts or visit our website: [www.peaceforage.bc.ca](http://www.peaceforage.bc.ca)

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