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Dr. Joanne Fagnou from Stouffville built a composting structure on her small horse farm to help her turn raw manure into finished compost in 60 days.

# KEEPING IT CLEAN!

## Manure management on small horse farms

By VOTF Correspondent Angelique Fawns  
With Dr. Joanne Fagnou

It seems like the ideal living situation for many rurally-inclined GTA residents... a small farm close to the city, with a few animals... a small farm close to your own. What could mar this perfect pastoral dream, with a small fenced paddock and your four-legged residents providing field art?

The manure. What do you do with all the manure? Unlike larger acreages where you can spread out horse apples on your fields, smaller properties have to find other solutions. A single horse can produce 50 pounds of manure per day which translates to nine tons annually.

Not only can manure cause visual and olfactory unpleasantness, there are environmental hazards as well. Good land stewardship means minimizing barnyard runoff into streams or wetlands, managing good pasture quality, and trying to control fly and insect populations.

Small acreages can achieve this through properly storing their manure and having it carted off-site, or possibly storing this resource to use as soil enrichment during growing season. Dr. Joanne Fagnou and her husband Kevin Isakow purchased a five acre farm just north of Stouffville to try out the rural dream. One of their first orders of business was to build a small barn and paddock for her two trail horses.

Fagnou and Isakow soon noticed that though her two black geldings were a welcome addition to their view, the piles of horse apples were not.

After attending a Lake Simcoe Region Conservation Authority lecture, "Healthy Landscapes for Healthy Horses," featuring a seminar on composting, Fagnou began to look at her manure pile with less disdain, and was eager to get going with an environmentally responsible solution to the inevitable small acreage problem of manure management.

Composted horse manure is an exceptional fertilizer to use in all areas of your garden or yard. Fagnou manages to get grass to grow on the sandy hills of her property by using her compost (and her neighbours said

it couldn't be done!) Fagnou says, "my horses actually have a grassy paddock to snack in where there was previously only sand. They love it!"

Her horse manure is actually a near perfect initial composting mix, having about a 25:1 carbon to nitrogen ratio. Adding bedding to the initial compost mix, which is a by-product of picking out stalls, raises the carbon ratio depending on what type of bedding is used. Wood pellets are recommended for the composting process, as the fine texture composts well and breaks down readily as opposed to wood shavings.

An easy way to start composting your manure to compost is to build a three foot long by three foot wide by three foot high bin to contain the droppings. Allow the manure to reach internal temperatures of around 140 degrees F for three days, turning it as often as necessary to keep the temperature up.

Fagnou's composting structure operates on this premise, but is what is known as an "aerobic static pile" – meaning it doesn't need to be turned. This is less labour intensive process.

Air is pumped into PVC pipes within a channel below the pile (formed into the concrete slab), maintaining oxygen levels within the pile at about 8-10 percent, enabling "aerobic" conditions. If air is not added, the level rapidly plummets to 1 percent or less, resulting in "anaerobic conditions".

With aerobic composting, the main by-products are carbon dioxide, water and heat. With anaerobic composting, the by-products include an array of complex, highly odorous compounds, water and heat. The heat is an important by-product, as it kills larvae and other pathogens, as well as weed seeds. If adequate oxygen is present in the pile, aerobic microbial activity will allow for pile temperatures to readily rise to 150 degrees Fahrenheit, where it must remain for 3-5 days to ensure pathogen and weed seed destruction.

Another added benefit to the "aerobic static pile" is the speed of turn around from raw manure to finish compost. Thirty days on air and another 30 days to cure and Fagnou has beautiful rich finished compost ready to spread in her sandy paddocks!

Here are some other considerations when constructing your very own manure composting site.

Make sure you keep water off of the manure pile. This means that rooftop or surface runoff should be diverted away from the manure storage. Gutter and downspouts are the best way to collect and convey rooftop runoff to an underground outlet pipe.

Build your storage unit out of a fence hazard area. Flood waters that can reach a manure storage location will transport manure downstream and cause extensive water quality problems. Also avoid steep slopes, to minimize the potential of offsite runoff. A solid concrete slab below will provide the ultimate barrier between manure and ground water and is a worthwhile investment.

Also think about how you are going to use the compost. Build your facility where you can easily get it from the horse stall or field, and where you can unload it and use it on your gardens.

Fagnou has had her manure composting structure for over a year, and initially thought she would be hard pressed to use up all the finished compost on her own property, but has found just the opposite. Her once sandy paddocks now have moisture retention from the compost, helping keep dust down during the hot summer weather, and her Hostas in the front flower bed have never looked better.

"They look like they are on plant steroids!" Fagnou exclaims.

There are regional programs like The Landowner Environmental Resistance Program (LEAP) which is run by The Lake Simcoe Region Conservation Authority in the Lake Simcoe watershed area.

They do provide grants for projects like building manure storage facilities. For more information, landowners can check out the program details at [www.lscrc.ca/on.ca/leap](http://www.lscrc.ca/on.ca/leap) or contact the Stewardship staff at 905-895-1281. However, keep in mind that the funding can run out quickly. Fagnou applied for the grant after her facility was built, but she was told the funding was finished for that year.



Buying a small horse farm is a pastoral dream, but keeping up with all the manure can be a nightmare. Here we see Dr. Joanne Fagnou picking horse apples out of her paddock while Canadian gelding Jerry looks on.



Dr. Joanne Fagnou manages to get grass to grow on the sandy parts of her property by using her own compost made from horse manure. Here we see Percheron Quarter horse gelding Ben enjoying some fresh grass on what used to be a sandy hill.

Photos by Angelique Fawns