

Article 3: WELCOME TO HOP HILL STABLE Part 3: Tips for Dealing with the End Product

Written by Nadine Abrams

In our summer issue; Hop Hill Stables, owned and operated by Michael Jewett and his family was highlighted for its unique approach using recycled materials for constructing a barn, adjoining tack room and riding arena. Using salvaged materials sourced from building demolitions around the province and repurposed on site features like the original homesteads' masonry stove, Hop Hill Stables illustrates its commitment to reducing its environmental 'hoof' print.

With 26 horses residing at Hop Hill Stables at any given time, there are a lot of hoof prints to consider. With the average horse consuming 2% of its body weight per day (about half a square bale) and an estimated 300,000 horses in Ontario; that is a lot of hay making and hay eating! However, it was the end result of the hay eating that concerned the Jewett family. With 220 feeding days when pasture is not available, the end result is a lot of accumulated manure. This needs to be removed from stalls, stored, composted and recycled to ensure that it does not contribute to contamination of nearby ground and surface water sources integral to the health of Hop Hill Stable's two and four legged residents!

With funding assistance from the Lake Simcoe Region Conservation Authority (LSRCA), the Ontario Soil and Crop Improvement Association (OSCIA), and Environment Canada, the Jewett's have constructed a modern 200m² (2,150ft²) covered manure storage facility adjacent to the barn.



The facility consists of a cover-all type roof, pre-cast concrete walls and a sloped concrete slab to facilitate drainage. "While we understand the risk of contamination, we also recognized the benefit manure can provide to improve pasturing for our horses. By keeping the manure on site, it also saves us the cost of trucking it to another facility for composting or disposal". The manure storage facility was specifically sized and designed for Hop Hill as per the recommendations provided in the farms' Environmental Farm Plan (EFP) and subsequent Nutrient Management Strategy (NMS). For more information on how you can complete an Environmental Farm Plan, contact your local representative at OSCIA (www.ontariosoilcrop.org).

The cost for a manure storage facility can range significantly depending on the farms needs and size of operation. The cost of labour and materials must also be considered. Based on manure storage facilities completed in 2010 by landowners in the Greater Toronto Area, the cost varied significantly ranging from \$6/m² for a 15m x 23m facility to \$17/m² for a 14m x 9m facility. The size and location of the facility, which should provide a minimum of 240 days of manure storage as per the EFP guideline, is based on a number of factors which are investigated during the development of your NMS. The number of livestock on the farm, topography of the land, the amount of pasture available to spread the manure and if there are any significant natural features nearby such as a creek or wetland are just some of the factors investigated. With so many variables to consider, one can see that a NMS is unique to each farm and that the cost of a manure storage facility can be easily affected.

At Hop Hill, the manure subject is still up for discussion as the Jewett's investigate phase two of their manure management plan, a composting system. Over the past year, Mr. Jewett and his family have investigated various uses for horse manure. After careful consideration and analysis of anaerobic digestion (composting without oxygen) for biogas and fertilizer, gasification and basic composting, the decision was made to pursue composting in a series of windrows. In agriculture, windrow composting is the production of compost by piling organic matter or biodegradable waste, such as animal manure and crop residues, in long rows (on level ground). In the case of Hop Hill, the farms' tractor is used to sculpt the manure into windrows. It is then turned every two days initially and then approximately once a week. The windrow is simultaneously watered via a compost turner (attached to the back of the tractor) which has built-in nozzles that spray the windrow during turning. The nozzles are attached to a 1,500 gal tank, acquired from a maple syrup equipment supplier, and is filled using the "recycled" water out of the existing cistern (rain water collected from the arena roof). Of course, a good watering from a hose works as well. The windrows are also monitored for temperature as the optimal temperature to kill pathogenic organisms and undesirable weed seeds is 130^oF to 160^oF. The turning process is repeated for approximately 10 to 12 weeks or until the manure has been suitably composted for application to the pasture or lawn area. There is no definitive rule but finished compost should be dark in color and have an earthy smell (like the smell of soil).

Mr. Jewett commented that manure from horses is not well studied as it is mixed with wood shavings or straw/straw pellets and that he is still learning about basic composting, the material compositions as well as more technical data such as the carbon-nitrogen ratios within the compost. The first round of composting at Hop Hill was successful with product being spread on the paddocks by early August. "The advantage for us," says Jewett, "is that we no longer need to haul manure off-site, but we eliminated spreading

raw, nutrient high manure on the land, which is so much better for the environment and our water resources.”

It is estimated that Hop Hill Stable produces 400 tons of manure each year, providing a considerable amount of invaluable nutrients for other uses around the property. Not only can composted manure help to improve pasture yield, but extra product can be applied to lawn and garden areas prompting some equine establishments to bag and sell their leftovers as a revenue generator.

“Every horse farm should look at their manure as a resource,” recommends Jewett. “Even if a properly designed manure storage facility is not in the budget, I would encourage people to look at the location of their manure storage and how they can reduce the risk of runoff contaminating local water resources.” Suggestions from the Healthy Lands, Healthy Horses program include making sure your manure pile is not located “up-hill” from your well or local creek. Based on the best EFP rating, manure storage of any type should be a minimum of 90 metres away from a private well and greater than 300 metres away from any municipal well (numbers vary in the Nutrient Management Act). Installing eaves troughs to divert clean water from building roofs away from the manure pile can help. It may be as simple as putting an extension on an existing downspout. Another option is tarping your manure pile as this will speed up composting and reduce runoff which reduces the nutrient content of your manure. For more information on how you can better manage your manure, visit the ‘nutrient management’ section on the Ontario Ministry of Agriculture, Food and Rural Affairs website (www.omafra.gov.on.ca).

We hope you enjoyed our three part series on Hop Hill Stables. To learn more about stewardship programs, the Environmental Farm Plan process and funding programs available to help you, contact your local Conservation Authority or OSCIA. Not sure which of the 36 Conservation Authorities you should contact, check out the provincial map and contact listing on the Conservation Ontario website at www.Conservation-Ontario.on.ca.

This article has been prepared by the Healthy Lands for Healthy Horses Steering Committee, which is comprised of representatives from the Horse Facilities Council, Uxbridge Horseman’s Association, Ontario Trail Riders Association, Equine Guelph, University of Guelph, Ontario Ministry of Agriculture, Food and Rural Affairs, Ontario Equestrian Federation and various Conservation Authorities. Funding for events organized by this committee has been provided by the Ontario Soil and Crop Improvement Association from the Nutrient Management BMP Demonstration Grant funding project.

For more information please visit: www.equineguelph.ca/healthylands.php