

*courtesy of America's Horse Daily*

We are surrounded by energy-saving devices at home and at work from appliances to energy-efficient light bulbs, all designed to limit the amount of water and electricity we consume. But when we head out to the barn, do we take “green practices” with us? With planning and investment, equine facilities, too, can implement environmentally sustainable practices that can also be economic.

Compared to houses and commercial buildings, “equine facilities are inherently green friendly,” says Joe Martinolich of CMW Architects. “Barns are low-energy users as compared to a house or commercial building because they are not usually air conditioned or heated.”



Often, “green practices” go hand-in-hand with good horse husbandry.

“Natural ventilation is great for animals,” he adds. “Open, vaulted spaces allow warm air to rise and exhaust. Ridge vents bring fresh air back in.”

High ceilings and exterior stall doors, with half doors that can be opened, also encourage airflow and provide a natural light source, reducing a barn’s reliance on electricity.

Here are some additional up-and-coming green practices that have been showing up on horse properties in places across the country.

### From Waste to Product

Whether spread on a field, hauled away in a trailer or composted on site, removing manure is ultimately getting rid of a stable's waste. Surprisingly, with a little help, manure can become more than waste – it can be converted into energy and, in some cases, it can become a source of income.

Biologically, manure can be broken down anaerobically or aerobically. When the process is anaerobic, (without oxygen), methane gas is produced, and methane mixed with carbon dioxide creates biogas.

Dairy farms, searching for ways to control increasing operating costs, are converting biogas into electricity to eliminate utility bills. Large-scale dairies are able to power their own facilities with biogas alone and can have enough energy left over to sell to utility companies.

Conversely, when manure is aerobically (with oxygen) processed through composting, heat is produced. Composting allows microorganisms to aerobically digest manure and used bedding. The heat can be captured and converted into useable energy.

Composting on a covered pad to harvest the heat eliminates the flipping process normally required during the composting process. The finished product can also be used in place of fertilizer to restore nutrients to the soil, and compost can become a sellable farm product to landscapers and gardeners.

### Water Options

Riding in a dusty arena is unpleasant and unhealthy for horse and rider.

“Water is the secret ingredient to footing,” says David Steffee, owner of Steffee Surfaces, “and controlling the amount of water applied is critical.”

Maintaining a stable moisture level provides a consistent surface and reduces the amount of water needed. The equipment used to apply water to a riding surface dramatically affects how well the footing surface is maintained.

Based on the “ebb and flow” theory similar to the edge of a beach, David recommends a watering system installed beneath the riding surface.

“Mimicking the sand at the edge of the ocean and controlling the water level in the system below the riding surface takes advantage of the capillary effect of sand to keep it moist,” he explains.

A valve installed with the system allows the stable owner to adjust the amount of water held underneath the footing. The water savings using the subsurface irrigation system can be remarkable.

“One show ring in Ohio is 60,000 square feet and only requires 2,000 gallons of water every day

to maintain it (using the subsurface system),” he says, “and an arena next to it that is smaller in size uses nearly 50,000 gallons of water every day.”

David adds, “The ebb-flow footings are very easy to maintain. They require a tractor with minimal horse power and a lightweight spring harrow that has a solid packing wheel on it. After the arena has settled in, it doesn't need to be drug very often.”

For barns and stables not in the position to build a new arena or renovate an existing one, overhead sprinkler originally designed for greenhouses can be installed. The spinner on the sprinkler spreads the water evenly across the diameter of the sprinkler's throw. Because of this design, it waters with uniformity. Maintaining the footing in an overhead watering system would be much the same as with a regular watering system.

Barn owners looking to drastically reduce the amount of water used can consider rainwater harvesting systems that trap rainwater and store it for later use.

“The roof on a 200-foot by 100-foot barn is equivalent to almost a half-acre,” architect Joe Martinolich points out. “If you catch and use that water (for purposes other than drinking) that is a sizeable amount of water.”

Before pursuing any type of rainwater-capturing system, be sure to check your state and local regulations and water rights laws, especially in western states.

### **Green Landscaping**

Well-planned landscaping provides more than aesthetic benefits. Carefully selected trees provide shade for arenas and barns, and decorative cobblestone pavers beautify walk-ways and aisles.

However, these aesthetic items are as functional as they are beautiful.

Large surface areas like rooflines, driveways, grassy paddocks and sun-dried earth shed rainfall without directing it anywhere in particular. If not guided, the excess water erodes soil and carries silt, sand and other pollutants directly into natural streams and waterways.

Permeable pavers, though similar in look to traditional concrete pavers, are manufactured with a spacer along each edge so that when installed, small gaps are left between each paver. The permeable paving system allows for water and air to move through the area once it has been installed. The small gaps provide water a place to go, directing it downward into the ground, rather than allowing it to flow across a hard surface.

Permeable pavers are gaining in popularity because of their environmental benefits, but also because national legislation requires municipalities and construction companies to use products to manage storm water runoff.

“Equine facilities in New Jersey are especially concerned with storm water runoff because of

state regulations that point to runoff from horse farms as carrying pathogens and nutrients into streams and lakes and impairing the health of those water systems,” says Amy Boyajian, program associate for Rutgers Cooperative Extension.

Rain gardens are one tactic being used to filter and treat storm water before it re-enters streams and waterways.

“Places like Rutgers University Equine Science Center in New Brunswick, New Jersey, have installed rain gardens to capture and treat the storm water runoff from one of their paddocks,” she adds.

A rain garden is a 200- to 300-square foot depression made in the ground that is filled with native plants. Excess water is directed to the rain garden where it sits for a day while the plants soak it in, filter it and return it to underground water sources.

“Plant type and selection is key,” Amy adds. “Native plants are the best option because they will survive well without a lot of maintenance. Most importantly, be sure the plants selected are not toxic to horses.”

For help in deciding what greenery to use, consult Cornell University’s Plants Poisonous to Livestock and other Animals Database at [www.ansci.cornell.edu/plants/index.html](http://www.ansci.cornell.edu/plants/index.html).

### **Reducing Carbon Hoof Prints**

Implementing environmentally sustainable practices in a stable can require creative thinking and an open mind. It may even mean trying techniques used in other industries.

The suggestions above are just a few ways stables can reduce their carbon hoof prints, drawing from strategies used in other barns, on dairy farms and in the landscape industry.

A few just might have potential for your farm.