



The Greening of the Horse World

By M.K. Viakley

Green. It means the fresh sweet smell of cut grass; it's the intoxicating aroma that hits you when you ride from sunlight into the moist forest shade; it's the visual texture of a million different greens on a lush mountainside; it's horse country.



It's obvious why "green" has become shorthand for the environmental movement; what's also obvious is the importance of environmental sustainability to the horse world. Most of us are in horses for the long haul, whether we own horses we want to nurture to ripe old ages or whether we live for our weekly lessons. Some of us just want to look out the kitchen window as they graze contentedly, surrounded by trees and streams, and, yes, green.

Our connection with horses deepens our connection with the earth. It's a natural inclination, therefore, to want to preserve and protect the earth's resources so that the lifestyle and wildlife we love can be sustained well into the future. After all, the future of this planet rests in all of our hands.



Sustainable practices and products have been slow to trickle into the horse world, in part because of the cost of implementing them, especially when horses are already an expensive passion. However, awareness and demand can turn the trickle into a stream, diluting the high prices; and most sustainable practices will more than pay for themselves over time. There are also a surprising number of grants available to help offset the initial costs of many sustainable improvements.

To see what you can do to improve your “green factor,” first get to know your local Conservation District and Service Extension offices. You can find the district office by either calling the National Association of Conservation Districts (NACD) or the Natural Resources Conservation Service (NRCS), or visiting their websites at www.nacdnet.org and www.nrcs.usda.gov, respectively.

The local service extension offices are staffed and will provide specific information about your area’s environment and what pollutants are common. Utilize the experts available to help you assess your property or practices, see what the local regulations are, find sustainable alternatives and solutions, and locate any applicable government grants or financial incentive programs.

As in anything, the more you know, the better decisions you will make, and the better you’ll be able to communicate with the professionals you hire along the way.

We spoke with several companies and horse industry professionals around the country to see what sustainable practices they’re using. Here are some of the green ideas we found in action.

New Building

Planning a new facility provides a good opportunity to successfully combine efficient function with environmental responsibility. The first step is to step back and look at your property as part of a bigger whole.

Have site, soil, and water analyses done. An environmental landscape architect or planner can assess how water flows to and from the property, how the land is shaped and in what direction, where there’s natural drainage, how the wind moves and where the hot/cold spots are.

This information, plus your particular climate zone, will determine where and how you place the barn and arena to maximize natural light and ventilation yet protect from

the wind, where you plant trees and shrubs for shade or wildlife habitat, where you build pastures and paddocks for best rotation and drainage, and how you can accommodate surface and reclaimed water sources to avoid mud and contamination of groundwater.

The site evaluation can also determine whether your property is suitable for renewable energy sources such as solar, wind and biofuels. The National Sustainable Agriculture Information Services (ATTRA) has several publications on sources from photovoltaic solar electric systems to hydroelectric generators to methane digesters.

Soil and water analyses are important to determine if there has been any contamination in the past, especially if you don’t know how the land was used. Any toxins detected will have to be cleared before construction begins. Here’s a rather extreme example.

After nearly a year of evaluation and testing, London’s Olympic Park, the site of the 2012 Olympic Games, is

currently being de-contaminated before construction can begin on any Olympic facilities. Engineers found arsenic, asbestos, ammonia, lead, coal tar, heavy metals and other contaminants in soil and water on the site, which had previously been used for heavy industry. The cleanup is expected to be completed by the time of the 2008 Beijing Olympics.

A thorough site evaluation can help you meet essential sustainable goals: to minimize your impact on land, groundwater and wildlife and to minimize your use of

The Oaks of Lake City, FL



Courtesy Equestrian Services, LLC



manufactured energy, keeping your “footprint” small.

Building Materials

In search of environmentally sound building materials appropriate to equestrian facility use, we asked a couple of architectural firms experienced in both fields what they had found to use.

Michael Donovan, principle and co-founder of Equestrian Services, LLC, a design, development and management firm that specializes in equestrian communities, says, “The number one (and two) areas where we see advances are in fencing and stall materials, especially for flooring.

Fencing—For one of his firm’s current projects, The Oaks of Lake City, FL, Donovan chose two eco-

Left: Michael Donovan of Equestrian Services

Below: This fence is made of LifeTime Lumber, the environmentally friendly way to create a pasture or paddock.

Below, inset: LifeTime Lumber.

friendly products to use for fencing—LifeTime Lumber rails and EnviroSafe posts. Both products are certified by the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, the nationally accepted benchmark for the design, construction and operation of high-performance green buildings.

LifeTime Lumber is made of recycled fly ash, an inert waste product from electric utility plants, and bound together with a polyurethane composite. It looks like wood, you can use woodworking tools on it, it’s impervious to insects, rot, water, and has a Class B fire rating (it’s already ash, after all). And it comes with a lifetime warranty.

Donovan has multiple uses. “I’m using it as fencing material and as curbing that we’re setting all the stall fronts and stall partitions on,” he said. “We run our rubber pavers up to it, so there would be rubber pavers in the aisle, then the LifeTime Lumber on which the stall fronts sit. That acts as a containment member so that the pavers don’t shift about.”

EnviroSafe is wood that is pressure-treated with disodium octaborate tetrahydrate (DOT borates) and EnviroSafe Plus, a proprietary polymer binder. According to the Bio-Integral Resource Center, borates are now the safest and most effective wood treatment available. Borates “do not cause cancer, have low acute toxicity, do not cause skin allergies by contact, and generally are quite safe if properly used.” EnviroSafe is effective against insects, virtually non-corrosive, fire retardant and also comes with a lifetime warranty.

Another eco-friendly fencing material is made from high-density polyethylene (HDPE). It’s strong, durable, maintenance-free, recyclable, resistant to extreme temperatures, and will not contaminate the ground and soil. Fencing material has traditionally been wood, with some of the market going to PVC in the 60s and 70s until the latter material was revealed to be toxic at every stage of its manufacture and use.

Regarding wood, Donovan said, “We’ve got 50 or 60 acres of pasture at The Oaks in Lake City...it’s miles of fencing! The idea of putting in wood you’re going to have to preserve and paint—first of all, wood is for all intents and purposes not a sustainable product, we’re cutting them down much faster than they’re growing. It just requires too much maintenance.”

He admitted about the alternative fencing, “They’re more expensive than some of the other conventional products, but if you look at the life cycle costs, I think you’ll find that a fence that lasts forever cannot cost more than a fence that doesn’t.”



Courtesy LifeTime Lumber [2]





Courtesy StableComfort by Promat, Inc.

Certain wall-to-wall flooring systems create maximum comfort for the horse while reducing bedding needs, creating an environmentally friendly and more healthful home for the horse.

The second layer is a non-porous, wall-to-wall cover that seals to the stall walls. The companies report that you'll reduce your bedding needs by up to 75%, which saves time and money when cleaning.

Equestrian Services, LLC's, team chose this system for their facilities after extensive research. Donovan added, "The other side effect...is that it reduces the labor, particularly when used in conjunction with a pelletized bedding product. It's less labor to clean your stall, your stalls are healthier, and it's a better system for your horse to stand on. So all those are good things, and it's using a recycled product."

"Another in-stall or in-the-barn product that very often uses recycled materials are rubber pavers. You put them in your center aisles and tack stalls and vet station. Again, you create an ideal surface to work on and use recycled materials, so you get a check in both columns from my point of view."

Yamil Gacel is an architect and senior project manager for PBS&J, a sustainable design and engineering firm that have turned their considerable expertise to equestrian facilities. He says that "equestrian centers are such a specialized product that there isn't any historical precedence (for green building), so we're really paving the way to a new prototype."

If you switched just ten light bulbs in your barn from incandescent

● to fluorescents, the atmosphere would be spared 3,289 KG of CO₂.

Source: www.asimpleswitch.com.

Mr. Gacel said that PBS&J also uses recycled fencing (LifeTime) and the two-art rubber matting system for stalls, but he added that "many mainstream green products would apply to equestrian centers as well." For example, use LEED-approved finish materials such as low- or no-volatile organic compound (VOC) emission carpeting and paint on building interiors; on the exteriors, choose the color of the glass and roof to either reflect or absorb heat to minimize use of manufactured energy.

"There's also the design of your mechanical systems, the selections of your plumbing fixtures (low-flow toilets and faucets), which can mean very substantial savings in water usage. The electrical systems, the type of lighting proposed, use fluorescents not incandescents, doing a heat change study to determine the best way to use natural light...all of these get you (green) points."

Gacel suggested those wanting to improve their green points start with the LEED Institute's list of approved products and practices to see what might work for your particular equestrian property.

He added, "Europe's been building this way for a long time. It's in the baby stages here."

Jennifer Donovan, Michael Donovan's wife and also a principle and co-founder of Equestrian Services, LLC, agreed, saying, "It's a bit early for green products in the horse community. It's all still so expensive. But the awareness needs to be out there now...(to drive) demand and the market."

Creating New Solutions

Upgrading the sustainability of an existing facility begins, again, with a site evaluation, including tests for soil and water contamination. The site planner will look at the same elements for a new building, but will change direction of the thought process. Instead of looking for the flow of natural energy (water, wind, sun) and riding the wave, so to speak, the planner will look for what *had been* the natural flow and what was done that didn't work with it, or worse, contaminated the area. Then come the options of what is practically and financially feasible to improve. As an example, we found a wide variety of green solutions all in one project.

The University of California (UC) Davis Equestrian Center was established in 1962. Some of its buildings are aged now, and the site has problems with drainage contamination and heat absorption. The university is known for being green, so when a plan to move the entire center to a new location was scuttled because of costs, administrators went to the landscape and engineering departments for sustainable solutions.

The result was a five-year plan that Matt Fucile, Associate Director of Operations, calls "making a new history." A new staff member was hired to oversee the renovation plan and inclusion of green elements.

The new site evaluation showed some eco-issues not addressed in the original plan. The whole center was built on a flat site with no natural drainage and no protection from the intense afternoon sun or the wind. Storm water collected in stagnant ponds at the site, and contaminated water drained into the ground and the arboretum waterway. Some buildings were positioned where they bore the brunt of sun and wind. The fencing was a flimsy vinyl product that was not eco-friendly. And no landscaping offered practical or aesthetic relief.

The five-year plan called for a new 45,000 square foot covered arena, which was completed this summer. The structure is pre-fab, made of metal for durability, and closed on two sides. It came primed with auto paint, so the university had the company re-do the job using low-VOC paints.

Exterior finishes are all non-reflective using textured surfaces, low-emission paints and coated glass to protect from the heat and minimize glare, especially for nearby traffic. The kickboards are LifeTime Lumber's recycled fly ash rails, which were also used to replace the vinyl pasture fencing.

Each quarter, 350 equestrians use the arena, 200 youths attend camp there each summer and 110 horses live in three nearby barns. All will enjoy the new arena footing, a cushy blend of sand and recycled rubber. They'll have the added pleasure of being able to ride uninterrupted by the sun, the wind and the rain. No more cancelled classes because of weather. Rain, in fact, would be welcome. Facile said, "The barn has such a long roofline, we're looking into catching rainwater."

As for the center's drainage problem, engineers are tackling it with a network of concrete curbing that will channel fresh storm water directly into the waterway. A new sewer system will collect the runoff that currently soaks into the ground. A system of underground pipes and pumps will carry the contaminated water through a series of existing and new sewer lines to the university's wastewater treatment plant.

Manure is now kept on a concrete pad to prevent any leaching into the soil. Local farmers pick it up to compost and use on their mushroom farms. Facile is currently looking for a green bedding program that fits into his budget.

The landscape department will put native plants along the arena as part of a low-maintenance beautification plan. Six elderberry bushes remain where they've stood for years and will be joined by carefully placed plants to shade the barns from the afternoon sun and heat.

A wind wall is also planned near the barns, along with solar-powered ceiling fans. Facile said they will try to "engineer into the buildings a way to take the natural direction of wind and create a breeze."



Courtesy UC Davis

UC Davis' new covered arena was carefully planned to be eco-friendly.



Tips

The following are random tips collected from conversations held while researching this article.

- Consider converting your diesel truck to biofuel. According to ATTRA, transportation accounts for 65% of U.S. oil consumption and is the predominant source of air pollution. Alayne Blickle of Horses For Clean Water has been running her Ford F-350 on biodiesel fuel for two years and said her truck has never run better.
- Keep all your vehicles properly maintained so they run efficiently. Upgrade parts, such as air filters, when you can. Keep your tires at the recommended weight and check often.
- When planning your next horse show, have recycle bins next to every garbage can. Place signs around grounds encouraging people to recycle and have the announcer mention it throughout the day.
- Also at shows, encourage water conservation with signs and extra buckets available for purchase. Encourage use of bio-degradable shampoos and conditioners, especially if horses will be washed where the rinse water drains into the ground.
- Consider composting manure on-site for later sale, depending upon local regulations. You can advertise during the show with announcements and signs.
- When attending your next horse show, take your own water. Keep a large container in your car and refill your carry bottles, preferably re-usable ones, throughout the day.

By considering the environment every step of the way, even when they have to often choose between what's green and what's financially feasible, UC Davis' Equestrian Center is well on its way to "making new history."

Land and Stable Management

All the recycled products and solar panels in the world won't mean a thing if stable and land management practices aren't in line with the same sustainability goals.

Nearly everyone we spoke with about green practices and products emphasized that what you do is as important as what you buy. That's good news to those of us who can't run out and get a \$1.5-million potable water system.

"Luckily, what's good for the land always turns out to be good for horse people and horses," said Alayne Blickle, a land management specialist and founder and director of Horses For Clean Water (www.horsesforcleanwater.com).

Blickle has been teaching sustainable land management techniques to livestock owners for over 15 years. She and her husband, Matt, raise American Quarter Horses on an environmentally sensitive 10-acre farm in the Pacific Northwest. They also compete in reining events, and Matt is a National Reining Horse Association judge.

The Horses For Clean Water website is a grassroots treasure trove of information on sustainable horse keeping. Name the topic, and it's been covered in the monthly newsletter, *The Green Horse*.

Not surprisingly, for Alayne, it all comes down to water. "We have to reduce non-point pollution to protect our surface and groundwater," she said. "Point source pollution comes from easily identifiable sources such as factories. Non-point pollution is non-specific—it's the runoff from everyday life."

According to the Environmental Protection Agency (EPA) and the Ecological Society of America (ESA), non-point pollution is the leading cause of water contamination, specifically with excess nitrogen and phosphorus. Rainfall or snowmelt



moves over ground, picks up the effects of pollutants, and deposits them in surface waters and underground sources of drinking water. High on the list of pollutants are “excess fertilizers, herbicides and insecticides from agricultural lands and residential areas; and bacteria and nutrients from livestock and pet wastes.”

Point source pollution is more easily identified, and more regulated depending upon the politics. Non-point pollution has no large concentrated source to easily regulate; until governmental management programs evolve to affect a reduction, we’re left with a pretty good alternative: individual choice. Who better than horse people to find out the behaviors that negatively affect their horses as well as themselves and replace them with behaviors that lessen the effect?

Here are some recommendations gleaned from our experts.

Pasture Management—Have your soil tested to let you know exactly what type of fertilizer your field needs and how much. Most people over-fertilize, and the excess ends up in the groundwater. If possible, rotate pastures, split pastures or utilize a sacrifice area when grazing cuts the grass down to three to four inches; resume grazing when grass grows to six to seven inches. This leaves enough plant to hold soil, act as bio-filtration, and prevent space for weeds to grab hold. If grazing isn’t enough, cut the grass to keep weeds down. Prevent muddy pastures by knowing the natural drainage pattern of your property and locating the pastures accordingly. If water does collect, create swales or ditches in the contour to catch runoff and rainwater. Use gutters and downspouts to catch rainwater from rooflines, and either collect in cisterns or direct away from paddocks.

Pest Management—Blickle recommends “planting native trees and shrubs to attract birds that control insects.” You can also build houses or nests to attract insect predators such as swallows; locate them where their droppings aren’t an issue. If you must use an insecticide, find one from the EPA’s list of safe alternatives. Don’t spray pesticides when there’s wind present, don’t apply them when there’s rain forecasted, and don’t use more than necessary. The excess chemicals will blow, flow or seep into the soil and groundwater.

Waste Management—The average horse produces upwards of 50 pounds of manure a day or about nine tons of manure a year. Composting, the decomposition of manure into nutrient rich fertilizer, is ultimate recycling. Horse owners or operation managers have two choices: have the manure hauled away by local farmers or a waste management service that composts; or obtain the knowledge, the tools and the space to compost themselves.

Each of the websites listed in the Sources box (page 60) has many pages explaining what composting is, how to perform it and how to pick the right system for you. While composting itself is inherently green, choices involved in the management of the manure and compost can either support or negate the green effect.

Donovan said, “We’re very big proponents of composting manure. Barn owners and workers need to be cognizant of how much bedding they’re removing from stalls. Some get stripped every day, and you get a huge amount of shavings or some other wood-based product along with the manure and urine from the horses. It’s much more difficult to compost because your carbon/nitrogen ratio is way out of whack. Ideally you take out only the manure and the completely saturated portions of the bedding...so you have the most effective ratio of carbon/nitrogen to help the composting process.”

Storage of the compost is highly important. Your local extension service or conservation district can tell you about any local regulations, such as how far the compost system needs to be from surface water or property boundaries. The compost pile should be placed on level ground away from drainage issues. The bottom should be an impervious surface such as concrete to keep any nutrients from seeping into the ground. The top should be covered to protect the compost from rain and the resulting contaminated runoff. For efficiency, the pile should be as near as is safe to the barn or paddock.



dreamstime.com/Dave Comarita

If water sources on your property become contaminated by runoff or chemicals used on your farm, your horse could be the one to feel the effects.



Donovan thinks, “to combine efficiency and environmental sustainability...the biggest component, the biggest expense, is labor, more so than feed, than hay, than insurance. You want to create the most labor-efficient system. Using sustainable materials is really icing on the cake.”

And that brings us to a final note (this month) on greening. While the term “green” has become a potent tool for marketers, it’s not just something to buy. Green is a more holistic concept (“holistic” being another word diminished by market buzz).

Holism (from Middle English *beli* and Old English *belig*, meaning *holy*) is a theory of the importance of the whole and the interdependence of its parts. Green, in theory, means being aware that every little thing we do affects another part of our world and changes it. That part could be the land, our horses or our neighbors. Green, in practice, means accepting the individual responsibility of that effect, every day and acting to make sure it’s positive.

As Karen Tappenden, publisher of *Holistic Horse*, said, “No one can be 100%, but every little step you take is one less footprint you make.” ■

M.K. Viakley is a writer and producer in Los Angeles and covered the 2006 FEI World Equestrian Games last summer. Early in her life, she earned degrees in horsemastership and equine massage. Viakley is a lifelong student of all things “horse.” She can be reached at mkviakley@earthlink.net.

Sources

The Environmental Protection Agency (EPA) at www.epa.gov. Massive site dedicated to education, research, enforcement of regulations and its voluntary partnership programs. Find out about the air, land and water qualities in your area and what pollutants are common. Some sections, such as the EPA’s WaterSense, will guide you to a list of certified professionals. Also provides an explanation of available grants and links to your regional offices.

The Department of Agriculture (USDA) at www.usda.gov. Several agencies within the USDA address very specific environmental issues.

The Natural Resources Conservation Service (NRCS) at www.nrcs.usda.gov. USDA agency formerly called the Soil Conservation Service. Provides technical assistance and information about your region’s eco-structure. There are also lists of local service centers, financial incentives info and links to pertinent non-governmental websites.

The Cooperative State Research and Education Extension System (CSREES) at www.csrees.usda.gov. USDA agency that provides a network of state, regional and county offices called Cooperative Extensions, which are staffed by experts ready to help answer questions and address problems. Finding your local extension is a quick click on their website, which also has excellent articles and publications.

National Sustainable Agriculture Information Services (ATTRA) at www.attra.ncat.org. Very detailed, target-specific information on sustainable solutions, such as composting, water and pest management, energy alternatives and more. Excellent educational publications. You can also discuss specific problems with a program analyst who will research solutions for you.

National Association of Conservation Districts (NACD) at www.nacdnet.org. Represents the 3,000 local conservation districts established under state laws to manage natural resources at the local level. Provides technical support and funding assistance. Find your local district office here—it can be an invaluable resource, especially to the smaller operations and horse owners.

Drink Tap at www.drinktap.org. Consumer conservation arm of The American Water Works Association, the world’s oldest (1881) and largest non-profit scientific and educational society dedicated to the improvement of water quality and supply.

U.S. Green Building Council (USGB) at www.usgbc.org. Non-profit with extensive info on building “environmentally responsible, profitable and healthy places to live and work.”

Leadership in Energy and Environmental Design (LEED) at www.usgbc.org/leed. Find out about the Green Building Rating System, which provides specific standards of sustainability for every phase of building, taking into account human and environmental health.

Low Impact Development Center (LID) at www.lowimpactdevelopment.org. Non-profit land planning organization that provides education and techniques designed to help balance environmental protection with growth and development.