SEEING GREEN

Going green can help the environment and your bottom line. And it's not as difficult as you might think.

BY CAROL NEWMAN
Blackburn Architects, PC

You've found the perfect piece of land for your equestrian project—a clean, green slate to build the stables and arena of your dreams—and you're committed to building green. Or maybe you have stables already and would like to make your operation more sustainable. Operating green has obvious benefits for the environment, but can also pay you dividends over the long run, saving you money in energy costs, waste disposal, water use, and building materials, as well as promoting the health of your animals. Many green options can be retrofitted to your existing facility. Here is your guide to getting it right, right from the start.

MASTER PLANNING FOR A GREEN ENVIRONMENT

The environmentalist's mantra, Reduce, Reuse, and Recycle, is a good starting point. You want to begin thinking about your project from the philosophical position of "less is more." Less environmental damage to your site; less toxic runoff into streams, watershed, and ground water; less water wasted; less energy needed to run your farm; fewer non-renewable materials used; less waste in construction. The best way to achieve these sustainable goals is to start with a master plan for your project that builds on a green premise and keeps its promise throughout the process.

Master planning allows you to consider all the elements of your project up front and craft a plan that anticipates and solves problems before they cost you money to correct. Site planning, evaluation of water and energy utilities, local weather patterns, vehicular traffic, future growth and possibilities are just a few of the master planning topics that allow you to build the facility you need and achieve your green objectives at the lowest possible cost. Don't be thrown off by the assumption that green is expensive: there are savings hidden in almost every green design option.

GETTING DOWN TO GREEN SPECIFICS

Stable Lighting

Imagine stepping into a typical barn on a sunny day: the bright light outdoors stays outdoors; your eyes take time to adjust to the seemingly total darkness; indirect light filters in through stable windows; and you flick on a switch to light up the interior. A traditional barn is often built with a loft for storage that creates a ceiling above the stable level. Such a design closes off opportunities for natural light and then demands electric lighting in order to accomplish any work inside, even during the day when natural light abounds.

A green alternative is to avoid a hay storage loft and provide a continuous ridge skylight. First, removing hay storage from your barn and reducing reliance on electricity combine to lower your fire risk—an added benefit of this green approach. Further, architect John Blackburn of Blackburn Architects in Washington, D.C., an equestrian designer with 25 years of experience designing barns, notes, "Natural lighting cannot be beat for the health of your horses, and it obviously saves energy and operating costs." A stable flooded with natural daylight is a central feature of a Blackburn barn, and it delivers a significant green advantage.

Nighttime and stormy weather obviously require your facility to be equipped with electric lighting. The lighting fixture industry has jumped on the wagon in a big way, making energy efficient options more and more affordable. But even substituting simple fluorescent lighting saves energy in your stable and reduces fire risk.

Solar Driven Ventilation

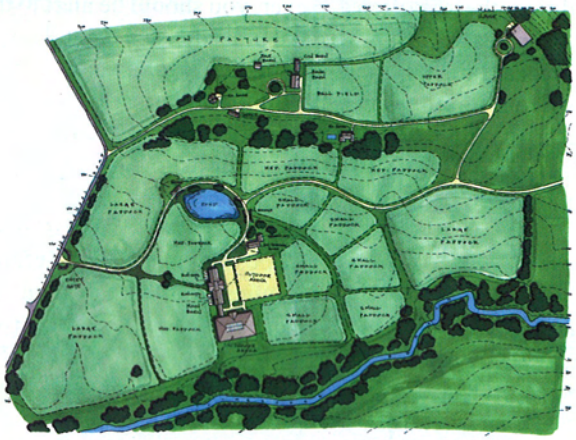
There's more than one way to harness the power of the sun and wind to work for you than in the generation of energy. A barn designed to work with the sun and wind can use those forces to produce natural ventilation to keep your stables cool on a hot day, keep air moving in a vertical pattern preventing transmission of pathogens from one horse to another, limit insect problems, and remove noxious gases and odors, all using the power of the sun and wind.

Here's how it works: The large roof surface of the barn captures solar energy and heats the interior. Along with the heat generated by the horses inside, hot air rises and draws cooler outdoor air from below. Designing your barn with ridge venting allows hot, damp air from inside to escape as it is replaced by fresh air being drawn in. According to Blackburn, "Designing a barn with natural lighting and ventilation is a two-for-one approach: continuous ridge skylights and vent-

Top left: This covered arena is a good example of not only taking advantage of solar energy, but it also shows a vast roof space for water runoff.

Top right: This aisle flooring is made from recycled rubber tiles.

Right: If you're lucky enough to start from scratch, a master site plan can mitigate a farm's impact on the environment by taking advantage of natural light and water sources.



ing work together, using renewable natural resources and the laws of physics to light and ventilate your facility forever, for free." That's a design feature that pays you for thinking green.

Water Conservation

Capturing rainwater for storage and reuse is simpler than you might imagine, and the advantages to your facility can be huge. A typical arena, for example, with 20,000 square feet of roof area with an average of 36 inches of rainfall per year (varying by region, of course), would produce 450,000 gallons of rainwater runoff. That's nearly a half a million gallons of fresh water that could be returned to groundwater reserves or reused on your farm. An average gallon of municipal water costs about a penny; so, you can add a potential of $5,000 annual savings to the benefits of capturing rainwater.

Harvesting rainwater allows you to reduce your dependence on wells and saves energy by lowering your reliance on pumping systems. Recaptured water can be used for paddock irrigation, fire protection, and for a water source in times of drought. Preventing runoff from large roof surfaces helps protect the local watershed from pollution and reduces soil erosion and damage to streams.

If water is not going to be stored for use on the farm, bio-retention ponds can be created as an ecological and economical way to filter water back into ground water reserves. Sometimes called rainwater gardens, these are depressions in the soil prepared with layers of stone, mulch and plantings, depending on your local environment. A bio-retention pond can appear on the landscape as a pond and, depending on placement, may make fresh water available to your horses while grazing.

In some states rainwater harvesting is actually illegal (Utah, Colorado, and Washington state), but those laws are in flux. Checking with your local Agricultural Extension office is the best way to get advice for your area and recommendations appropriate for your climate and geography. Tax credits are available in some areas, making this effort on your part even more cost effective.

Environmentally Safe Muck Handling

There are several sustainable approaches to muck handling, but one thing is certain: the topic is important to address in your facility whether you are up and running or at the planning stage. A conservative estimate is that one 1,000-pound horse can generate eight to ten tons of manure per year. Include soiled bedding and the estimate rises to 12 tons per year. Improper handling of muck can create numerous environmental prob-

lems including the proliferation of pests, rodents, odors, and, most detrimental—polluted runoff that damages the local watershed.

While composting is a complicated process, once set up in an environmentally sensitive manner that protects local streams, most of the problems associated with muck are solved. High composting temperatures kill insect larvae and bacteria, manure volume is reduced by an average of 50 percent, and you are provided with a resource that has a value. Composted manure, when mixed with sand and wood products, makes an ideal footing material for your arena and trails. In addition, there is often a market value in the resale of composted manure to local farmers. Your facility may also be eligible for tax credits for composting manure responsibly. Your local Extension office can help navigate these issues.

Generating Energy

If you are striving to go green, nothing demonstrates your efforts for the environment more effectively than stepping off the power grid. The vast roof spaces of stables and arenas, usually unencumbered by shade, give your equestrian facility a golden opportunity to save fossil fuels and reduce greenhouse gases. Both the cost and the aesthetics of solar panels are improving constantly, and the investment may be more affordable that you would think. Many states provide incentives and exemptions for businesses interested in converting to solar power. You may even be able to earn energy credits for returning surplus power to the local grid.

A COAT OF GREEN

If your equestrian facility is already up and running, there are numerous ways you can reduce the environmental impact of your operation—and give your budget a little green while you're at it. In fact, most of the ideas listed above could be adapted to your up-and-running facility with a little ingenuity and a modest investment.

Keep in mind that one of the most important green steps you can take on your farm is to preserve old structures. Building new is, generally speaking, a less sustainable option than restoring your old barns and adapting those structures for a new use. Tearing down and hauling away an older building may be the least green option of all, straining local landfills with usable materials. If a professional evaluation determines that the cost of restoring an old building would be too high, at the least, salvage as much material from the demolition as possible. Wood salvaged from an old barn tends to be rock solid and adds an aesthetic to your farm that is hard to beat. However, you should be alert to the potential of lead-based paint if you have the opportunity to salvage old barn wood. Your local hardware store has lead-testing kits available for checking old paint for lead.

SUSTAINABLE PRODUCTS

Choosing materials carefully can be a huge step in the green direction. Recycled and renewable products are available and affordable. Pavesafe, for example, is an equestrian paving product made entirely from recycled tire rubber. Recycled aluminum, salvaged wood, and local stone are all green options. Going much further, however, nearly every construction element is available using recycled content, from foundations to roofing materials.

In purchasing green products, look for independent reviews and certifications. Eco Logo and Green Seal are two companies that award recognition to products that stand up to the light.

FINDING A PROFESSIONAL DESIGNER

If you want to achieve the greenest impact you can with your equestrian project, you should look for LEED accredited professionals (Leadership in Energy and Environmental Design)—architects, engineers, and designers who have passed accreditation exams on building green. (See the Resources sidebar for more information.) LEED accredited professionals know how to give you the greenest results possible for your project and your budget. In addition, they should be familiar with local tax incentives for sustainable efforts. Blackburn Architects is one firm that designs equestrian projects nationwide and has LEED accredited equestrian designers on staff.

GREEN-WASHING

Be careful not to fall victim to "greenwashing." These are marketing practices that capitalize on the worthy trend to be green in our homes and businesses without delivering any true environmental benefit. There are lots of snake oil salesmen out there, eager to cash in on every trend. Using a LEED accredited designer, checking for the authenticity of products, and consulting with local Agricultural Extension consultants can ensure that you make wise choices.

GREENBACKS

The take-home message here is that going green doesn't have to kill your budget. Businesses all over the country are beginning to recognize the savings inherent in "going green." Many design options that are good for the environment save money over the long haul. When energy prices rise, conserving energy, saving water, recycling waste, and considering the use of sustainable materials on your farm go beyond helping the planet: They can help your bottom line. [sm]

Helpful Resources

- www.blackburnarch.com
- www.buildinggreen.com
- www.usgbc.org
- http://www.find-solar.org
- http://cfpub.epa.gov
- http://ecoreintl.com
- www.ecologo.org
- www.greenseal.org
- http://www.das.psu.edu
- http://www.neo.ne.gov/home_const/factsheets/recycled_const_mat.htm
- http://pubs.cas.psu.edu/freepubs/pdfs/ub035.pdf