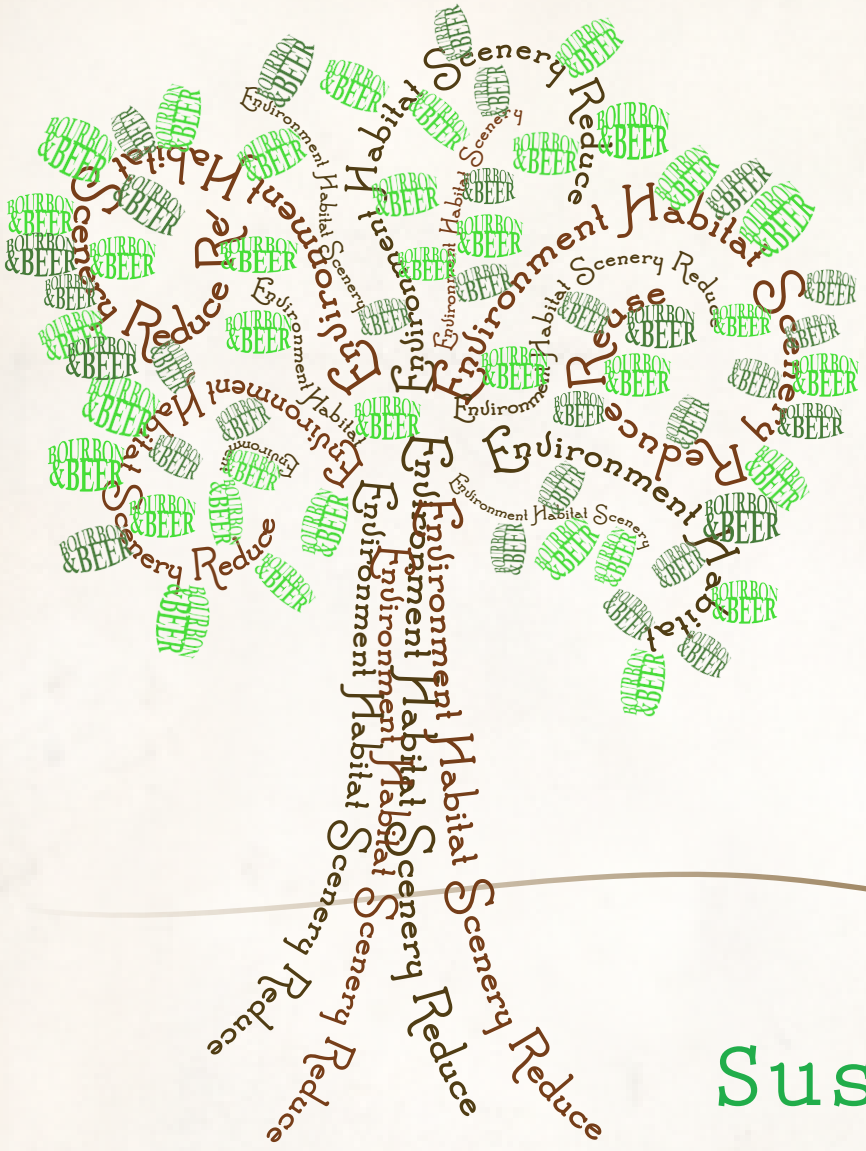


Sustainable Spirits:

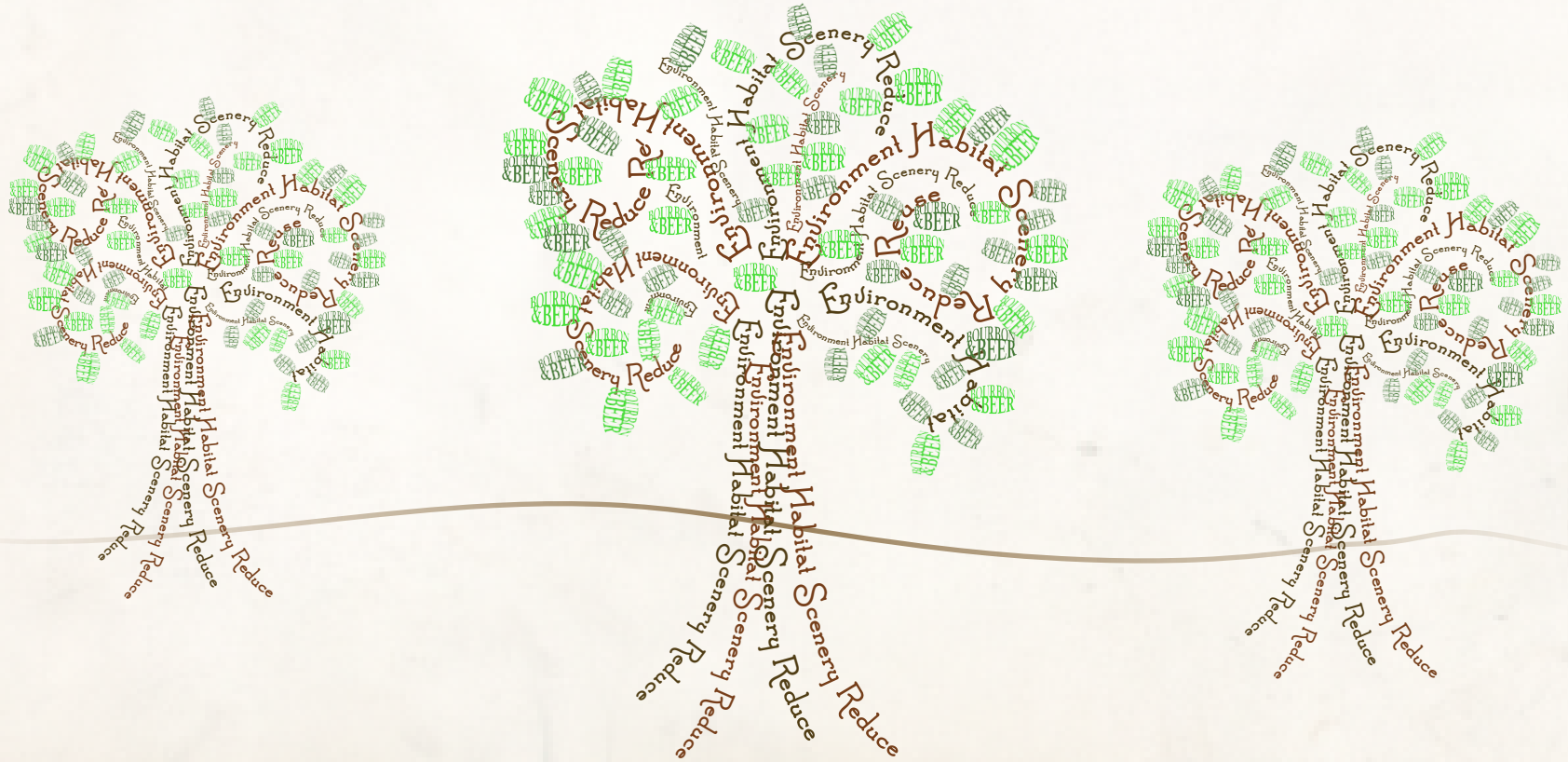
A Look Into Sustainable Practices of Kentucky's Distilleries and Breweries

INTRODUCTION

Kentucky is the home of beautiful landscapes and bourbon, but it is the connection to the land and its people that makes the spirits industry in Kentucky so special. Part of this uniqueness is how Kentucky's bourbon and beer industries work together to protect and preserve Kentucky's natural resources.

Formed in 2011, the Sustainable Spirits Initiative grew out of a growing demand from industry experts to get together and share their experiences on environmental issues. What resulted from these early meetings was the realization that the spirits industry as a whole is committed to and actively participates in projects that benefit Kentucky's environment. These untold stories of environmental stewardship led to the development of an idea – to collaborate and document the best practices that the spirits industry in Kentucky offers.

In the following pages, you will experience all that this industry offers to Kentucky citizens through their environmental stewardship actions. In the end, we hope you will see that Kentucky's spirits industry is intimately connected to the land, air and water, and by protecting these resources, they are ensuring sustainability for their businesses, communities and our environment.



Air Qual·it·y:•noun•\er•kwä-l ə-tē\ a measurement of the pollutants in the air; a description of healthiness and safety of the atmosphere• Example: Since air is necessary for all living beings to survive, it is important to protect its quality. Members of the Kentucky distilling industry have implemented a variety of ways to prevent air pollution, which is a major contributor to serious health issues. From offering incentives for carpooling to buying grain locally to using biomass, the Commonwealth's distillers are striving to keep the air clean. ***PAGE 5***

Com·mun·it·y Out·reach:•noun•\ kə-myü-nə-tē• aůt-`rēch\ a unified body of individuals; the extending of services or assistance beyond current or usual limits • Example: In Kentucky, members of the spirits industry have shown their concern and community-minded attitude in many ways. From gathering neighborhood opinions about proposed projects to restoring historic buildings to teaching students about the importance of recycling, distillers and brewers are acting as good corporate citizens. ***PAGES 10-11***

Con·ser·va·tion:•noun • \ kän(t)-sər-vā-shən\ a careful preservation and protection of something; especially: planned management of a natural resource to prevent exploitation, destruction, or neglect• Example: Members of the Kentucky distilling industry appreciate the beauty, value and abundance of natural resources in the Commonwealth. For that reason, they have taken measures to carefully preserve and protect the environment through planned management of resources, implementing natural methods of insect control and protecting the habitat of wildlife. The facilities are reclaiming materials and avoiding exploitation of natural resources. ***PAGE 4***

En·er·gy:•noun• \`e-nər-jē\ a fundamental entity of nature that is transferred between parts of a system in the production of physical change within the system and usually regarded as the capacity for doing work• Example: Distilleries use large quantities of energy to produce the world's bourbon. Naturally, they want to minimize this expense where possible. But another goal that these distillers share is to be environmentally responsible corporate citizens and use the latest technology to cut out unnecessary usage and waste. ***PAGES 6-7***

Waste Man·age·ment:•noun• \`wāst •`ma-nij-mənt\ damaged, defective or superfluous material produced by a manufacturing process; the conducting or supervising of something• Example: Waste comes from many sources, which requires a multifaceted approach to handling it in the best way for the environment. The distilleries have found solutions for everything from office waste, such as paper, plastic bottles and cardboard, to distillery by-products to wastewater. What can be reused or repurposed can be kept out of landfills and save precious natural resources. ***PAGES 12-13***

Wat·er:•noun•\`wä-tər\ the liquid that descends from the clouds as rain, forms streams, lakes and seas, and is a major constituent of all living matter and that when pure is an odorless, tasteless, very slightly compressible liquid oxide of hydrogen H2O• Example: Industry wide, attention has turned in the last 20 years or so to conserving water. Although water is a major part of the product, water is used extensively for heating and cooling processes, too. Water is used for production and cleaning and sanitizing production vessels. The distillers recognize the importance of using water wisely and maintaining a high standard of cleanliness for humans. ***PAGES 8-9***

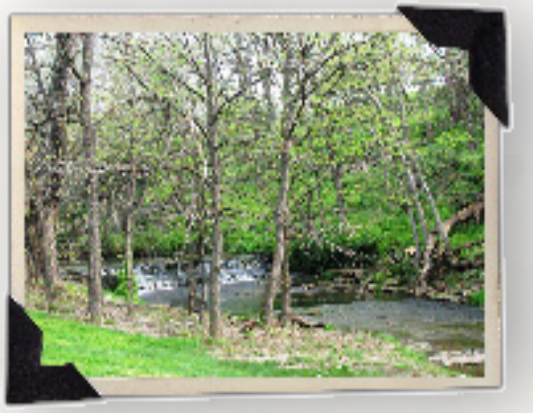
CONSERVATION

Maker's Mark

Maker's Mark is involved in several projects on its 684 acres to provide a habitat for wildlife and natural controls for insects. The facility has established a wetlands area near Hardin's Creek. In an effort to forego chemical spraying in the lake watershed, several purple martin houses were hung near the lake to promote the population of the birds, which are a natural control for insects. In nearby fields, native grasses and wildflowers were planted, whose seeds provide food for deer, turkeys and birds. Native grasses are more drought-tolerant than fescue and provide nesting areas for the bobwhite quail, which have diminished in number due to the destruction of their native habitat.

Woodford Reserve

Woodford Reserve is focused on maintaining the quality of its water supply, as well as the quality of nearby Glenn's Creek. Ponds located at the distillery are stocked with grass carp to control weed growth without the use of chemicals. Woodford Reserve is also moving forward with a habitat restoration pilot project, which will restore a portion of the creek bed using native vegetation designed to support birds and wildlife, as well as filter stormwater that runs off parking lots on the site.



Jim Beam-Boston

Jim Beam-Boston uses eco-friendly methods of keeping the insect population under control by scattering nesting boxes for bats, wood ducks and Eastern Bluebirds around the wastewater lagoons. Just one bat can eat more than 1,000 mosquitoes in an hour. Wetlands between the lagoons and Mud Run Creek are a popular location for wildlife. Three on-site lakes are stocked regularly, and native grasses were planted on a hillside and only need to be mown once a year. This has been certified as a wildlife habitat project by the Kentucky State Department of Fish and Wildlife.

Jim Beam-Clermont

The most convenient parking lot at the Jim Beam-Clermont facility is specially designated for employees who car pool or drive fuel-efficient vehicles. It is estimated that about 70 percent of the air pollution in modern cities is tied directly to traffic. Research shows that air pollution actually causes physical changes to the brain and is linked to a list of health problems, including memory loss, depression and learning disabilities.

Wild Turkey

When natural gas prices were very high, Wild Turkey had options, but switched to using wood waste in the boiler, which is more sustainable because it is a product that can be reused. Using biomass can have some pollutant reductions compared to using other types of sources. Biomass systems can reduce waste energy from 66 percent to 25 percent compared to traditional fossil fuels, using a smaller amount of input material or biomass.

Jim Beam-Old Grand Dad

Jim Beam–Old Grand Dad Plant purchased two electric utility carts to replace two gasoline-powered security vehicles. Using these electric carts has decreased carbon dioxide emissions by more than 32,000 pounds, based on driving 12,000 miles annually per vehicle.

Woodford Reserve

At Woodford Reserve, all corn used in production is locally sourced, which limits the cost of transporting the grain as well as reduces the air pollution emitted from the trucks. All distillation by-products are given to local farmers for animal feed, which also reduces transportation costs and emissions. Additionally, the company purchased an electric cart to move small groups of visitors around the site instead of using the larger tour bus, reducing air emissions related to its visitor operations.

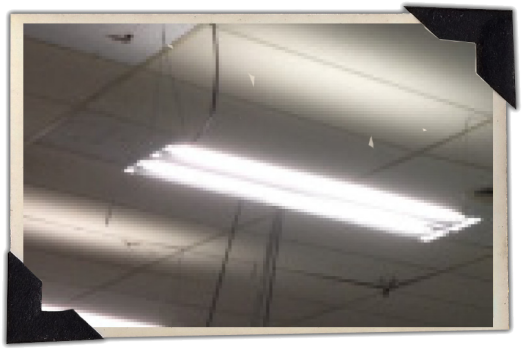
ENERGY

Jim Beam-Clermont

The Jim Beam-Clermont American Stillhouse visitor center, which is LEED-gold certified, is designed to be sustainable while reflecting the history of the Jim Beam Distillery in its physical appearance. A geothermal heating and cooling system uses heat energy from deep underground to heat or cool the building. Geothermal technology is 50 to 70 percent more efficient than furnaces or boilers and 20 to 40 percent more efficient than most air conditioners. Geothermal is renewable and environmentally friendly, with no need for fossil fuels or generation of pollution.

Jim Beam-Boston

Jim Beam-Boston has been seeking ways to cut energy usage at the facility and began with an energy audit. As a result, the facility is now on an electric demand system and paying $39,000 per month, which will save $130,000 due to the billing process. The company has also replaced metal halide lights with W/T-8 lights and motion sensors. LED lighting now lines the driveway. Any extra lights will be removed or switches will be placed on them.



Heaven Hill-Bardstown

Heaven Hill replaced 662 metal halide, mercury vapor and fluorescent tube lights with four-lamp, F54T5HO High Bay fluorescent fixtures at its Bardstown location. As a result, there has been a 55-60 percent load reduction for lighting in the warehouse, which translates to an approximate annual savings of $70,000 and offers a more efficient source of lighting.

Heaven Hill

Heaven Hill is installing occupancy sensors throughout the Bardstown facility and replacing all T-12 fluorescent fixtures with efficient LED lighting. This new project will further reduce the facility's energy demand by 1,816,537 kWh. These lighting efficiency improvements translate to annual savings and offer a safer, cooler and brighter source of lighting.

Wild Turkey

Wild Turkey has changed to more energy-efficient lighting, such as T-8 fluorescents, compact fluorescents and metal halide lamps, and has sensors and high-efficiency pumps. They also purchased programmable lighting panels to turn lights off when the plant is not operating. For the new packaging facility under construction, they are using T-5 lamps and fixtures. The newer buildings have better insulation, and everything is automated in the three main buildings. The distillery operation is more efficient due to increased use of computers for process control.

Woodford Reserve

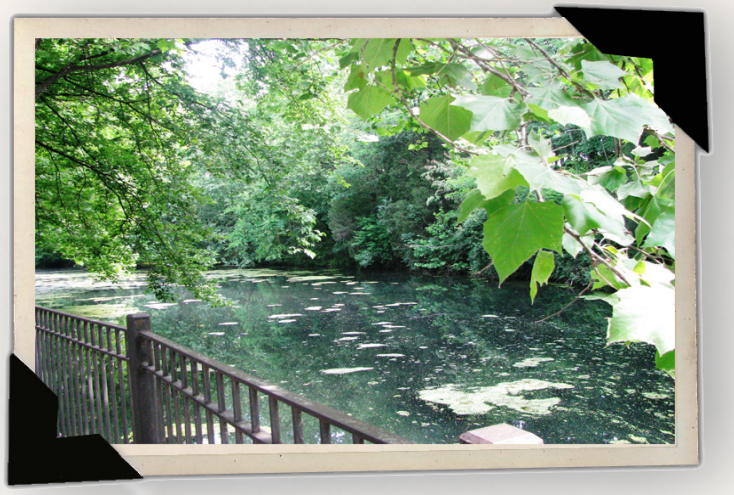
Woodford Reserve has invested in energy-efficiency improvements, including energy-efficient lighting in production and maintenance areas. The company has also installed high-efficiency burners on the natural gas steam boilers and automated production processes to reduce the amount of steam required for production.

ENERGY

WATER

Jim Beam-Boston

A win for water quality all around, wetlands act as filters to prevent chemicals and sediment from flowing into nearby streams, therefore ensuring the quality of on-site springs, creeks and lakes. As part of its watershed protection program, the Jim Beam plant in Boston established wetlands between the wastewater lagoons and Mud Run Creek, with an added benefit of increasing the wildlife diversity of the area. Not only good for the environment, water conservation saves money. Each gallon of water reused to replace potable water saves on both the costs of the potable water replaced and fees for discharging the process water to the sanitary sewer. The Jim Beam plant in Boston has devised several ways to conserve water. Employees have been instructed to sweep, rather than wash, floors in the plant. Also, the facility recirculates process water to cooling towers to conserve water and save on treatment capacity.



Woodford Reserve

As part of its environmental sustainability targets, Woodford Reserve is working to improve water efficiency by 30 percent from a 2012 baseline within 10 years. Water-efficiency projects planned or in process include replacement of fixtures and toilets in the remodeled Visitor Center with low-flow models, reuse of reverse osmosis reject water for make up water to its cooling tower and process improvement changes to mashing and sanitation to reduce the amount of water required in each batch.

Jim Beam-Clermont

Most low-flush toilets use 1.6 gallons per flush as opposed to the usual 3.5 gallons and motion sensors on sinks can save as much as 30–50 percent of the water normally used. Together with water-conserving urinals, these technologies resulted in more than a 30 percent water-use reduction at the new Jim Beam American Stillhouse visitors' center in Clermont.

Wild Turkey

Often people don't realize that temperature can be a pollutant, as well. To address this issue, Wild Turkey has a closed loop cooling system for its facility, where the city water they use is recycled. In five months' time, the facility used 130 million gallons of water. This system eliminates pulling water from the Kentucky River and then returning it to the river at elevated temperatures.

Maker's Mark

Every day, more than three billion gallons of water wash down the drains of American homes, businesses and industries' drains, according to an EPA estimate. This wastewater carries sediment and other pollutants. Manmade wetlands serve as natural wastewater treatment systems, which is why Maker's Mark has established a wetlands area near Hardin's Creek to help filter stormwater runoff from the watershed.

WATER

Heaven Hill-Louisville

Heaven Hill completed a water conservation project at its Louisville site. A water basin was constructed to collect water overflow from various distillery processes that previously went to the sewer. The basin feeds recycled water to the cooling tower. This process reduces cooling tower water intake by 60 percent, and in turn, reduces flow to the city sewer system.

COMMUNITY OUTREACH

Jim Beam

Jim Beam representatives visit middle and high schools to teach students about the importance of recycling and how to use water more effectively to curb waste. Students also learn how to treat wastewater and reuse it. The goal of these visits is to encourage students to create meaningful behaviors that will carry into adulthood.

Wild Turkey

Wild Turkey is involved in various charitable causes. One such charity is Operation Once in a Lifetime, which was created to make the dreams of U.S. soldiers come true by providing free financial and moral support to U.S. service members, their families and veterans, regardless of rank, deployment, physical condition or branch or service. Wild Turkey is working to raise $101,000 for Operation Once in a Lifetime by matching any donation up to $50,500.

Maker's Mark

Maker's Mark and its employees give back to the community on a regular basis and are active in community outreach in two ways. The company makes monetary donations to Habitat for Humanity, and employees are given two paid eight-hour days a year to volunteer for the charity of their choice.

West Sixth Brewing Company

West Sixth Brewing Company, in Lexington, is a craft brewery located in a former brownfield property, the Rainbo Bread Company building. The redeveloped two-story building, which also has a basement and dates back to 1880, is now called The Bread Box and is located in the historic Northside Neighborhood. The 90,000-square-foot structure hosts other companies and community organizations with like-minded views and commitments to the community. The presence of the brewery has revitalized the community and encouraged development of nearby sites. West Sixth even donates some of the profits from the brewery to neighborhood charities.

Woodford Reserve

Woodford Reserve reaches out to the community in a variety of ways. All of the corn for production is sourced from local farmers, supporting the local economy. The company also restored five historic stone buildings on-site. Using these buildings adds charm to the oldest and smallest working bourbon distillery in Kentucky, and allows these National Landmark buildings to be put back into daily use. Additionally, Woodford Reserve educates its employees on the importance of appropriate recycling for common items, such as batteries, fluorescent light bulbs and electronic waste (e-waste). To help its employees recycle these items, Woodford Reserve has established collection boxes on-site for employees to bring these materials in for recycling.

WASTE MANAGEMENT

Jim Beam-Boston

Jim Beam–Boston recycles its used barrels by sending them to other distillers to use for scotch and other spirits. The facility also recycles office paper, cardboard, glass, metal, aluminum, plastic and wood. The distillery also sells 8-10 truckloads of spent grains daily to local farmers for animal feed. By selling the distillery by-products locally, transportation costs and the potential for air pollution are minimized and tons of waste are kept out of landfills. The U.S. has 3,091 active landfills and over 10,000 old municipal landfills. Landfills eventually leak, creating more environmental issues. This country generates more waste every year, growing from 247 million tons of nonhazardous waste in 1990, to 409 million

Jim Beam-Clermont

During the construction of the Jim Beam American Stillhouse, more than 78.5 percent of the materials left from the construction, or 43.27 tons, were diverted from the landfill. Old asphalt was torn up and sent to an asphalt company to be reused, and fly ash was reused in the concrete that was poured. Additionally, trees that had to be removed were ground into mulch, the wood floors were reused from an old barn, the reception desk was made with leftover pickle vat wood from a project at a nearby site and a lot of furniture, fixtures and old library ladders were repurposed.

Heaven Hill-Bardstown

While Heaven Hill-Bardstown planned to implement a structured waste management program to be in compliance regarding aerosols, solvents, batteries and spent lamps, a large recycling project stemmed from the project. In 2013, 771 tons of materials were recycled and kept out of landfills. This included baled and loose cardboard, newspaper, film, barrels, plastic bottles, bottle caps, green banding, aerosols and more. The outdoor recycling center for employees is complete, and employee enthusiasm for the project has led them to bring their recyclables from home to be picked up.

Maker's Mark

Maker's Mark is examining everything going to the landfill in an effort to cut its waste throughout the plant. Due to this, the plant has been able to cut office waste dramatically through recycling. Maker's Mark also sells two or three truckloads of distillery by-products materials daily from the slop tank to farmers for animal feed, which makes an excellent source of protein for the cattle; solids from the anaerobic digester are given away as fertilizer. Estimates are that 57.4 percent of paper used in 2008 was recovered through recycling.

Wild Turkey

Wild Turkey recycles 55,000 used barrels annually to be used for aging scotch. Spent grain from the distillery goes to farmers for high-protein cattle feed. The plant also recycles cardboard, cans, plastic bottles, plastic straps and office paper, and encourages its employees to bring their recyclables to work. Every year in this country, 25 billion plastic bottles are used. If each home in the U.S. recycled just 10 percent of its plastic bottles, 200 million pounds of plastic would be saved each year.

Woodford Reserve

As part of its environmental sustainability targets, Woodford Reserve has set a zero-waste-to-landfill target to be achieved by 2020. In support of these efforts, production and office materials are recycled throughout the site, including the Visitor Center. As part of the Visitor Center remodel, Woodford Reserve constructed tables using wood reclaimed from an old barn that was deconstructed as part of the distillery expansion, instead of sending the material to the landfill.

Heaven Hill Bardstown

When the local wastewater treatment plant neared its capacity and faced having to limit new customers, Heaven Hill refurbished an existing, non-operational, on-site lagoon system. The system is equipped with three ponds that are aerated, treated with nutrients and then discharged to the City of Bardstown. By doing this, the distillery reduced its sewer costs significantly and also allowed growth in the Bardstown community. In a dramatic contrast, Heaven Hill's BOD and TSS loading to the city's wastewater treatment facility are now minimal.

A special thanks goes to the Kentucky Distillers Association and the distilleries and breweries who allowed us to highlight their efforts to protect and improve the environment.

The Sustainable Spirits Initiative is managed by KY EXCEL, Kentucky's environmental leadership program. Housed in the Kentucky Division of Compliance Assistance, we strive to connect industry leaders and provide a space for these leaders to be recognized. For more information about going green and becoming an environmental leader, please visit http://dca.ky.gov/LGGS/Pages/default.aspx.

Environment Habitat Scenery Reduce
BOURBON &BEER