

Stewardship: TSC's Sustainability Program

We view our Stewardship Program as a process of continuous improvement as we look for ways to become more efficient, eliminate waste and reduce our impact on the environment.

Good for the Future

We call our sustainability program “Stewardship” because we know that we have to be good stewards of the land and our natural resources so that our children and future generations will have the same opportunities we enjoy today. Our stores, our customers and the products we sell all have an impact on our environment. By minimizing that impact, we can help create a healthy environment today and ensure that the rural lifestyle we love is available for future generations. Our Stewardship Program includes partnerships with youth organizations like 4-H and the FFA so we can protect what we have while teaching the next generation to do the same.

Good for Our Stakeholders

With its primary focus on efficiency and eliminating waste, our Stewardship Program is consistent with our Tractor Value System, which is our program of continuous improvement, and offers benefits for all of our stakeholders. In addition to minimizing our impact on the environment, many of our initiatives have the added benefit of reducing costs. Reducing costs enables us to continue to offer our customers everyday low prices. Becoming more efficient provides us with an opportunity to improve our returns to shareholders and provide good jobs for our team members. And our Stewardship Program benefits the local communities we serve by conserving natural resources and reducing waste.

Good for Our Environment

We have made good progress in implementing many changes to our business that have a positive impact on our environment. But we know we have more work to do. That’s why the company has created a Stewardship Steering Committee to lead our sustainability program. It’s composed of eight senior executives charged with developing strategies to promote sustainable practices. This committee meets at least quarterly to set goals, formulate plans and review results. The plans developed by the Steering Committee are implemented throughout the organization.

Our Stewardship Vision

Tractor Supply believes that a healthy environment, properly managed resources and vibrant communities are keys to a secure and prosperous future.

The Lifestyle

We are dedicated to ensuring that the ability to live out here on one’s own terms is available to future generations.

The Environment

We continuously work to improve our environmental impact by reducing resource consumption and waste, increasing efficiency and providing alternatives to customers and team members wherever appropriate.

The Business

We view sustainability to be a process of continuous improvement, offering opportunities to complement our business values.

Programs for Customers

Battery Recycling

Through a partnership with Exide, our stores collect used vehicle batteries for recycling. This program gives customers a convenient way to dispose of used batteries properly and keeps recyclable materials in the manufacturing stream instead of landfills.

Used Oil Recycling

Used oil is collected in our stores from customers and recycled through a re-refining process that reduces the production of greenhouse gases by 85% and heavy metal emissions by 99.5% compared to burning oil as fuel.

Environmentally Friendly Products Available at Tractor Supply Co. Stores

TSC offers customers environmentally friendly products such as:

- Redstone™ Ecobricks, additive free sawdust bricks used for home heating that burn hotter and with less smoke than cord wood and emit fewer particles into the air.
- All natural Fresh Cab®, a safer, more responsible rodent-control product.
- Safe T Sorb® Oil Absorbent, a 100% natural earth clay product processed to a granular form.
- Peak® Natural Cleaning Windshield Wash, a natural yet powerful windshield wash for temperatures above 32 degrees Fahrenheit.
- Liquid Fence® Deer and Rabbit Repellent, an environmentally safe and biodegradable animal repellent.
- Solar energy supplies for electric fencing, fence gates and outdoor lighting.
- Wind-powered products

• Store Operations

• Cardboard Recycling

- Cardboard balers have been installed in nearly 900 of our stores and are being installed in many of our remaining stores and in all new stores.

• Pallet Recycling Program

- A new recycling program for wood pallets is being introduced in our stores in 2012 and is expected to recycle more than 2 million pallets a year.

• Reusable Shipping Crates

- Tractor Supply Co. ships thousands of riding mowers annually in reusable crates, saving thousands of trees while reducing landfill waste.

• Low Emission Forklifts

- Over 700 stores have new low emission forklifts that reduce smog-forming emissions (70% lower than the federal standard) and are 25% more fuel efficient than the forklifts they are replacing. The new forklifts are being introduced to our remaining stores and all new stores.

• Right-Sized Dumpsters

- By introducing “right-sized” dumpsters at stores, the number of needed garbage pickups has dropped by one-third, saving thousands of gallons of fuel every year.

• Tractor Supply Publications

- Policies and tips to reduce energy consumption and recycle materials are communicated to team members via The Voice, TSC’s employee newsletter, and to customers via Out Here, a free TSC publication available at stores.

Facilities and Real Estate

Energy Management

Almost 700 of our stores use remotely monitored energy management systems, reducing energy consumption in these stores by an estimated 16%.

Heating and Cooling

New cooling systems utilize more environmentally friendly R410-A refrigerant.

New stores utilize high efficiency heating and air conditioning systems with digital thermostats and many incorporate vestibules to decrease air infiltration and reduce system usage. We are installing automatic front and rear doors and plastic curtains on our rear doors to reduce system usage.

Lighting

Energy saving compact fluorescent lighting is installed in new stores and has been retrofitted into many existing stores, reducing electricity consumption by 14% in these stores.

Distribution centers have reduced energy consumption by using an automated system for lighting.

Plumbing

Low flow toilets have been installed in more than 200 stores.

Other Solutions

Tractor Supply Co. continues to evaluate other environmentally friendly solutions, including indigenous plants, low-water landscaping, permeable concrete and skylights, and is testing many of these ideas at an expanding number of stores.

Logistics and Transportation

Recycling

Our distribution centers recycled 3,000 tons of cardboard in 2011. Plastic wrap is also recycled.

Elimination of Plastic Containers

Under a new program being implemented in 2012, plastic containers are being replaced with cardboard boxes that will be recycled by the stores, eliminating return trips to distribution centers and saving an estimated 550,000 gallons of fuel annually.

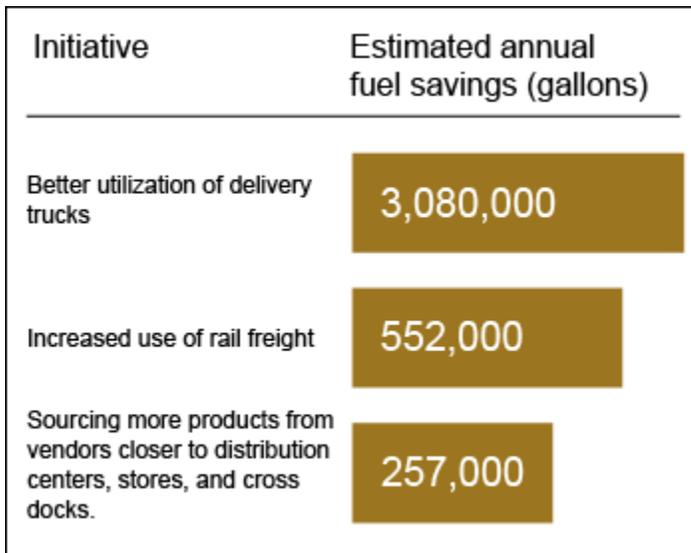
Supply Chain Changes

A number of initiatives have been implemented in TSC's supply chain that have reduced fuel consumption, including:

- Better utilization of delivery trucks
- Increased use of rail freight
- Sourcing more products from vendors closer to distribution centers, stores and cross docks.

More changes to reduce fuel consumption are planned for 2012, including a change from round-trip feed deliveries to a one-way model.

11.3 Million Gallons of Fuel have been saved since 2009 as a result of changes to our supply chain.



Giving Back

Out here, we believe actions speak louder than words. So it's no surprise we'd rather be helping out with a farm or ranch chore, than talking about it. We know that, to our customers, they're more than chores. They're choices about where and how they live. That's why we've built more than a company. We've created a culture based on the life and land Out Here.

Our rural lifestyle is a celebration of independence. Self-reliance is a source of great pride, but the "do it yourself" attitude doesn't mean you have to do it alone. The spirit of neighbor helping neighbor, exemplified by traditional barn raisings, is the foundation of life Out Here. This commitment to each other, to "being there" for our neighbors and friends, is what sustains us through good times and bad.

We're committed to doing whatever it takes to see that these values endure.

Our community values have earned the trust of the folks we serve. They've also earned us a reputation for service that goes "The Country Mile." But service means more than helping customers save time and money. It means serving our communities and supporting the programs that strengthen them. We're not just protecting a way of life for ourselves; we're ensuring it's an option for our children. They deserve the same choices, the same satisfaction of getting up early and getting a job done.

Our children deserve a chance to live the life Out Here. On their terms.

Giving A Leg Up

Helping someone get up on a horse is called "giving a leg up." We think it's an excellent way to describe our community outreach efforts, because it implies more than just giving financial support. It's rolling up our sleeves and getting involved.

We give a leg up to groups and organizations committed to sustaining what we call the Out Here lifestyle. Some promote learning about agriculture and farming practices. Others promote leadership and life skills through competitions and hands-on activities. But whether the focus is the land or the lifestyle, we're committed to partnerships that make the most sense and the biggest difference.

Some groups get a leg up through corporate support. This National Support makes sense for the organizations that play a vital role in many of our communities across the country. Others get a leg up (literally, with our own two hands) from the local Tractor store and the employees who live and work in the community. This Community Support continues to make thousands of events and programs possible. It allows us to support millions of folks locally, particularly youth, and serve as both a neighbor and a community store.

Giving a Leg Up to National Organizations

At Tractor Supply we believe that our customers' trust is our responsibility. They count on us -- on our resources and knowledge -- to help live the life out here. We don't take that lightly, which is why we generously support the national organizations that promote and protect our lifestyle and the land it depends on.

Giving a leg up to National 4-H.



What started as an experiment to expose young people to agricultural advances has evolved into the nation's largest youth development organization. We've been more than a witness to much of that growth. We've been a proud supporter.

Today's 4-H touches more than 6 million youth across the country and Tractor Supply continues to sponsor its innovative programs. In addition to corporate donations, all the 1100+ Tractor Supply stores participate in signature "Paper Clover" events to raise money and awareness for local 4-H Clubs.

These twice-a-year events provide crucial support, with 65% of the money remaining in the local community. This year, the Clover events alone raised over \$1,000,000. The Spring event went down in history as the most successful 4-H fundraiser ever.

We also support National 4-H by donating a portion of the proceeds from the sale of re-usable bags and our own DuMOR Show Feed. This is in addition to thousands of community and partner programs we sponsor locally.

Giving a leg up to The National FFA Organization.



In 1928, FFA was founded by a group of young farmers to prepare future generations for the challenges of feeding a growing nation. Today the organization grows future biologists, chemists, veterinarians and engineers.

Tractor Supply has been one of the longest and largest sponsors of FFA.

To date, we've contributed millions of dollars to support education and scholarship programs that are preparing students for the agricultural challenges ahead. This support allows thousands of members, from all across the country, to pursue interests in equine science, poultry, production, landscape management... eight areas of focus in all.

We're also proud to be the national sponsor of FFA Week. Held every year during George Washington's birthday, this event provides thousands of members with an opportunity to share their passion for agriculture with the public and demonstrate their leadership skills by volunteering for community projects. Tractor Supply stores play an active role in this event, staging store fundraisers and demonstrations that highlight the accomplishments of local FFA Chapters.

These experiences and the leadership skills they foster will equip thousands of individuals for personal success. We can't think of a better way to ensure the future of our agricultural land and lifestyle.

Giving a leg up to the American Quarter Horse Association.



It's hard to imagine a rural landscape without picturing a quarter horse grazing in it somewhere. No other breed inspires the loyalty and enthusiasm of folks Out Here. The AQHA (www.aqha.com) is the official registry... with more members than any other breed organization in the world.

As the official Farm and Ranch Improvement partner, Tractor Supply provides year-round support for AQHA programming. Together, we promote the many benefits and rewards of responsible horse ownership, whether you ride competitively or just for the joy of it.

It's a powerful partnership; just consider our trail conservation program, STEP (Stewards for Trail, Education and Partnerships).

STEP (www.ridegreen.aqha.com) encourages equestrians to take part in trail maintenance, while promoting strong relationships with local land managers. STEP is improving the quality of the trail riding experience across the country. From recruiting volunteers to achieving maintenance goals for trails and trail heads, these projects have proven extremely popular for horse and landowners alike.

Giving a leg up to the United Way.



The United Way's focus on making a difference in our communities is a perfect complement to Tractor Supply Company's values. We like to think that, as a company, we practice the "give, advocate and volunteer" motto of United Way to impact our local communities in a positive way.

That's why the leadership of Tractor Supply takes such pride in the level of United Way support we generate internally. Great satisfaction comes from the knowledge that the majority of the money we raise will support vital programs at the community level. We are committed to offering support to our neighbors in need, particularly within the communities hardest hit by the recent economic environment.

Giving a leg up to animal care.



From pet and horse rescue to livestock breed preservation, Tractor Supply engages with national organizations to make a difference in the well-being of animals. Our partnership with PetFinder.com helps match up pet adoption groups with locations for adoption. Nowhere have the benefits of this matching program been more successful than during our annual Pet Appreciation Week, where every Tractor Supply store in the country hosts a pet adoption. Over the last two years, this single-day adoption event has helped find homes for more than 4,800 animals. That's something we're exceptionally proud of.

As a founding sponsor of A Home for Every Horse Program, Tractor Supply was able to build an effective partnership with The Equine Network and the Unwanted Horse Coalition to reduce the number (estimated at over 175,000) of unwanted horses in the U.S. Based on research done by the horse industry, the plight of these animals is the single greatest concern of equestrians in the U.S.

Tractor Supply enabled A Home for Every Horse to develop one central location on equine.com. This leverages the power of the leading website in the \$25 billion dollar horse industry. It means more buyers, sellers, and breeders can become aware and involved in these rescue efforts.

As a partner of the American Livestock Breed Conservancy, Tractor Supply works closely to help protect our agricultural future by preserving and promoting endangered livestock breeds. ALBC programs are protecting more than 180 breeds of livestock. Our sponsorship helps to raise awareness, support and documentation of these rare breeds.

Giving a leg up to the environment.

When it comes to the pristine, natural resources that we cherish, the greatest impact we can have is none at all. We recognize the need to become more efficient, eliminate waste and reduce our impact on the environment.

That's why we've made sustainability a strategic priority that starts with an executive steering committee (eight senior officers charged with cultivating sustainable practices.) This committee meets at least quarterly to set goals, formulate plans and review results. The plans are implemented throughout the entire organization.

One example of sustainable practices is our customer recycling program for used products like batteries and motor oil. Another is Tractor Supply Stores selling environmentally friendly products. Examples also include internal practices, from the recycling of packaging and shipping materials to the heating, cooling and lighting of our facilities. A more detailed overview of these practices can be found under the Environmental Sustainability section of the website.

Giving a Leg Up to Local Communities

At Tractor Supply, the most popular sayings all begin with “whatever it takes...” In the majority of cases, we’re referring to making a difference. Our corporate culture encourages our team members to go above and beyond, to make a real difference with their customers and their local community.

We share more than the love of the rural lifestyle. We share the desire to preserve it and see it thrive.

This desire fuels our commitment. It’s one thing every Tractor Supply team member has in common, and it’s the thing that sets us apart from competitors. It’s why so many Tractor Supply team members are active in their community, why they generate so many ideas for new events, partnerships and programs at the local store level. It’s why we make such a difference, through so many organizations, in so many communities across the country.

Giving a leg up to those struck by disaster.



We know what it takes to build a life Out Here. And we know nothing can unravel it like a natural disaster. As anyone who has lived through the destruction of a tornado, flood or fire can tell you, one of the greatest hopes is just a return to the normal routine. It often takes the entire community coming together, to get through the immediate crisis and beyond. Tractor Supply stores are proud to be part of the community spirit that helps sustain and re-build by providing relief in the form of funds, product and manpower.

Tractor Supply and its team members have been there for victims of natural disasters from Hurricane Katrina to Hurricane Irene. When the largest and most destructive tornados in 40 years ripped through Georgia and Alabama in 2011, Tractor Supply stores donated thousands of dollars in gift cards to the Red Cross in these communities, in addition to providing truckloads of water at relief stations throughout the area.

Thousands of animals were left stranded and without feed after the devastating fires in central Texas in 2011. Tractor Supply stores worked with Nutrena to provide 17 tons of livestock and equine feed, and 4 tons of pet food in Bastrop, Texas, one of the hardest hit areas. We provided colored pet collars for use in tagging strayed pets for ownership organizations devoted to reuniting lost and stranded pets with their owners.

When fires broke out in Colorado in 2012, shortly after Tractor Supply opened its first store in the state, our local store donated thousands of dollars to the Greeley, Colorado Humane Society for animal relief efforts.

More than just financial support, Tractor Supply Stores and team members give of ourselves, too. We are often at the forefront of pitching in and helping out. In some cases, we may be the only business that remains open, with back-up generators, to provide needed supplies. We’ve even stayed open 24 hours, serving as a hub for neighbors to support each other, as in the recent floods in West Virginia, when our Oak Hill store served as the meeting place for the entire community.

The only silver lining when disaster strikes is the way rural communities come together. This was clearly the case when Tractor Supply sponsored the Alan Jackson Benefit Concert for Mineral Springs, West Virginia to help that community rebuild after the rare East Coast earthquake in 2011. Community response to the fundraiser was inspirational, raising over \$152,000 to help rebuild the condemned county high school.

Giving a leg up to local organizations.



In addition to the substantial support of 4-H, FFA and AQHA at the corporate level, local Tractor Supply stores host thousands of fundraisers for the local chapters and groups, from bake sales and car washes to cookouts and pet adoptions. This is a natural, when you consider hundreds of Tractor Supply team members are also members or alumni of these organizations. The majority of the money they help to raise stays in the local community.

In the case of 4-H, this money has helped fund hundreds of hands-on learning programs, a Junior Master Gardener Program, and local scholarships that serve as the only means by which some 4-Hers can attend National Congress or 4-H camp.

Local high school Ag Advisors and FFA Chapters also feel at home in their local Tractor Supply store. These groups often host fundraisers at our stores, raising monies for community projects, like building a school greenhouse, a new bridge in a public park, and an animal care lab.

Our stores also work with local FFA members to support specific programs and proficiencies by providing demonstrations from knowledgeable Tractor Supply employees and our vendor partners.

Tractor Supply stores are active sponsors of County Fairs, where many 4-H and FFA youth compete and showcase their efforts. We're committed to financial support, sponsorships and supplying needed products to help meet the needs of these annual fairs. Many of our store managers serve on their Fair boards, providing leadership and hands-on help throughout the year.

Giving a leg Up to local animal rescue groups.

Finding responsible, caring owners for all the deserving pets out there is one of the highest priorities at Tractor Supply. Our annual Pet Appreciation Week celebration involves every store in the country hosting a pet adoption event on the same day.

Throughout the year, our stores partner with local humane society and rescue groups to provide ongoing local adoptions. We've learned it is as important to our customers as it is to us, evidenced by the thousands of pets who have been found forever homes through pet adoptions at Tractor Supply. The local store adoptions have become part of our DNA.

Sometimes they involve a little creativity, like the big pet celebration held in Montgomery County. The local Tractor Supply team invited three different organizations – representing all different breeds – to an adoption day where the local community learned how to care for and train the different animals and determine what breeds were most suitable. Our Cookeville, Tennessee store hosted the first 24 hour Round the Clock Pet Adoption this year at Tractor, working with 5 area rescue groups.

In addition to supporting the national horse adoption program, A Home for Every Horse, Tractor Supply stores often support local rescue organizations with donations of products, time and money. As with most causes connected to the core values of our company, horse adoptions are an excellent example of how Tractor Supply team members get involved and make a difference in their communities.

Giving a leg up to kids with disabilities.

Horses provide so much quality to life out here. And Tractor Supply believes everyone should have the opportunity to benefit from these special animals. After all, everyone feels tall when sitting in a saddle. This includes children with disabilities. Horses provide a newfound freedom of movement and ability to take part in recreational activities. To them, riding brings a ray of hope.

That's why Tractor Supply supports Saddle Up!, one of the largest therapeutic riding programs in the Southeast.

We believe the program's mission, to provide these kids with an opportunity to grow and develop, is one of the greatest gifts we can give. And we're very proud to support it, by sponsoring the annual Grand Prix and other related events, which raise hundreds of thousands of dollars for Saddle Up!.

Giving a leg up to kids who give back.



There's no better way to perpetuate the spirit of giving back than to do so through our youth, particularly when it involves the resourcefulness and the agricultural rewards that come with the rural life.

When we learned about Katie's Krops through one of our Iowa stores, the decision to support this worthwhile program was an easy one. At the age of eight, Katie grew a 40 lb. head of cabbage as part of a school program. The idea she had, for the cabbage to feed over 200 at a local homeless shelter, was as big as the cabbage she nurtured from a seedling. The act of compassion was a spark that ignited her passion for helping people in need (and inspiring others to do the same). Katie formed Katie's Krops, a non-profit organization that awards grants to other children who grow vegetable gardens to help feed the needy.

Tractor Supply provides gardening supplies and additional funds to help sustain the hundreds of Katie's Krops" now flourishing in over 15 states.

Giving a leg up to each other.

It's probably obvious, we believe actions speak louder than words. And the best example of practicing what you preach is taking care of your own. Sometimes it's the neighbor from the next work station at work that needs help. We're very proud to demonstrate that sometimes charity does begin at home.

The Tractor Supply Community Foundation was established to provide support for team members in need. In the short year since its inception, we've provided 32 grants and much needed assistance to team members and their families.

We've been there for a team member when their baby arrived early and required several surgeries to treat complications. Our support meant that they could focus on the baby's condition, instead of the medical and monthly bills.

We helped a widow of a Tractor Supply team member who was suddenly facing a mountain of medical bills and the loss of the household's only income. With little time to get her feet underneath her, she was able to find work and support herself.

When the tornados in 2011 hit Cullman, Alabama, one of our team members was a victim. As she shared, "Our family lost both of our barns. The strong winds damaged our home's foundation and caused water damage in both the living room and kitchen. I had insurance but water damage was not covered. This employee assistance program was a lifesaver to my family. We were able to get all of the flooring replaced and part of the labor charges. I would not have been able to get my home and life back together had it not been for this program."

These are the things we do for each other, for our team members, neighbors and friends who live the life out here. It's an unspoken belief that guides our compassion and our actions. The belief that what we do for each other, we do for ourselves.

Should tragedy or disaster befall us, there's no place we'd rather be than in one of the rural communities we serve. These are the people you can count on... in good times and bad. We're proud to support them and committed to going beyond the extra mile. That's why we go the country mile every day.

Information Technology Becomes More Energy Efficient



As computers have become an increasingly important part of our lives, the energy needed to power them has soared. Tractor Supply's information technology department is keenly aware of the energy demands of the company's computer systems and the high cost to operate these systems. That's why the department has been working diligently to improve the energy efficiency of the company's computer systems while replacing dated servers and equipment.

"Energy efficiency is a very important consideration in selecting new IT solutions," said James Callison, chief information officer. "We believe it is essential to focus on the ongoing operating costs of a new solution, not just the initial cost. Replacing our older systems with more energy efficient systems is the right thing to do for the company because it lowers our operating costs, and it is the right thing to do for the environment because it reduces energy consumption."

James and his team have been pursuing a "server virtualization" strategy that is resulting in a big reduction in energy costs and consumption. Under this strategy, computing capacity is increased by adding "virtual" servers instead of actual servers. In the last two years, the company has added 348 virtual servers, which is saving the company more than \$100,000 per year and reducing the company's energy consumption by more than 1.2 million kilowatt hours per year.

In 2012, the company is replacing approximately 422 servers in existing stores with new servers that reduce energy consumption by 40 percent. The company is also replacing approximately 1,100 registers in existing stores with new registers that reduce energy consumption by 35 percent. These new, more energy efficient servers and registers are also being installed in new stores. The installation of these new servers and registers is expected to reduce operating costs by another \$100,000 and save an additional 1 million kilowatt hours per year.

The IT department has implemented other programs in support of the company's Stewardship Program, including the reconfiguration of the company's data center airflow, which has reduced energy costs in the data center. In addition, the department is replacing many of the company's existing computers with more energy efficient laptops. The company also disposes of outdated computer equipment in an environmentally responsible manner by utilizing only vendors who confirm that none of the equipment will end up in a landfill.

Stewardship In Action: Pallet and Tote Recycling Program

Les Gardner, vice president of logistics and transportation, has been focused on improving the efficiency of the company's transportation network since joining Tractor Supply Company in 2008. Les and his team have made major changes to the company's logistics and transportation systems that have reduced both the company's operating costs and its impact on the environment. By changing from a dedicated roundtrip delivery program between distribution centers and stores for most shipments and by making other changes, Tractor Supply Company has saved more than 11.3 million gallons of fuel since 2009.

The dedicated roundtrip delivery program could not, however, be completely eliminated because of the need to return wooden pallets and plastic totes (used for smaller merchandise) from the stores to the distribution centers. Les challenged his team to find a way to eliminate the remaining roundtrips. Bob Endemann, vice president of transportation, lead a cross-functional team to develop a solution. Working closely with Jon Gardner (vice president of store operations), Ryan Mayes (manager store administration and services) and Brad Cooper (store support specialist), the team overcame a number of logistical and operational issues to come up with a workable plan to eliminate the remaining roundtrips. Under the plan, the pallets will be picked up at the stores by an existing recycling vendor and will be recycled. The plastic totes have been eliminated and replaced with cardboard totes that will be recycled by the stores as part of the company's existing cardboard recycling program.

The new program, which was introduced in the second quarter of this year, has a number of benefits, including:

- A reduction of an estimated 4.4 million miles traveled by TSC delivery trucks.
- A reduction of more than 700,000 gallons of diesel fuel a year.
- A net positive bottom line benefit to the company of several million dollars.
- A net positive benefit to the environment mainly through a reduction in air pollution and fuel consumption.

The new pallet and tote recycling program is a true "win-win" for the company and the environment, and it is a great example of Stewardship in Action at Tractor Supply Company.

Chasing the Fuel of the Future

Ask around and you might hear that America's interest in alternative fuels and hybrid vehicles is less than a decade old. But ask someone in the know, and you'll get a different story. Dr. Cliff Ricketts, professor at Middle Tennessee State University, has been involved in alternative fuels since 1978. And Tractor Supply has been right there with him most of the way.

When gasoline prices tripled in 1978, Dr. Ricketts began to envision a future in which Americans wouldn't rely on foreign oil. He was concerned that without foreign oil, farmers could not get their crops to market, resulting in a food shortage. At a time when carmakers tried to find ways to use less gas, he found ways to use other fuel sources like ethanol and hydrogen instead.

In 1991, the world's first hydrogen fuel race was scheduled to take place at the Bonneville Salt Flats in Utah. Dr. Ricketts, who was already teaching at MTSU at the time, wanted to enter but needed the help of a sponsor.

At MTSU, Dr. Ricketts is a longtime professor of agriculture education teaching future ag teachers. He's also had a long-standing relationship and involvement with the Future Farmers of America. Through a contact on the FFA's national board, Dr. Ricketts reached out to Tractor Supply for sponsorship dollars. TSC awarded him a grant to participate in the race—which MTSU matched—and Dr. Ricketts was off to Bonneville. It was a smart investment to back Dr. Ricketts and his team, who set a land speed record for a hydrogen-fueled car—a record that stood for 15 years.

Dr. Ricketts's work in alternative fuels is all done in the hopes of achieving these four goals:

- Make the American farmer energy independent.
- Help the trade imbalance, as most of the imbalance is due to oil.
- Help the environment. A hydrogen engine's only output is water.
- World peace. Many of our world's conflicts are related to our reliance on oil.

But Dr. Ricketts doesn't chase records, and he isn't in this field for fame or notoriety. He's in it for science and for the future of our country. Always eager to share his discoveries, he's made presentations at the World's Fair about running cars on cow manure and soybean oil, and he has testified before Congress on Flex- Fuel Hydrogen Hybrid Vehicles. He's even been able to run an engine using water.

"I first did that in 1987," he recalls. "Started with a Briggs engine, then a tractor."

A self-proclaimed "farm boy," Dr. Ricketts's passion these days is getting passenger vehicles to run on nothing but sun and water. In March, his passion turned into a near reality. Thanks to TSC's continued sponsorship, Dr. Ricketts and his team drove from Georgia to California using energy from the sun, water, ethanol and a little more than two gallons of gasoline. The trek used three of the team's modified vehicles. Next year, the team is planning to do the trip again with the intent of relying only on sun and water, using fuels produced on campus at MTSU.

"If I can make it from coast to coast on nothing but sun and water, I will have made my contribution to mankind," says Dr. Ricketts. "And it's thanks to Tractor Supply."

An important part of TSC's Stewardship Program is providing support for projects that promote sustainable practices to protect our environment. TSC's support of Dr. Ricketts's alternative fuels research since 1991 demonstrates TSC's long-standing commitment to stewardship.

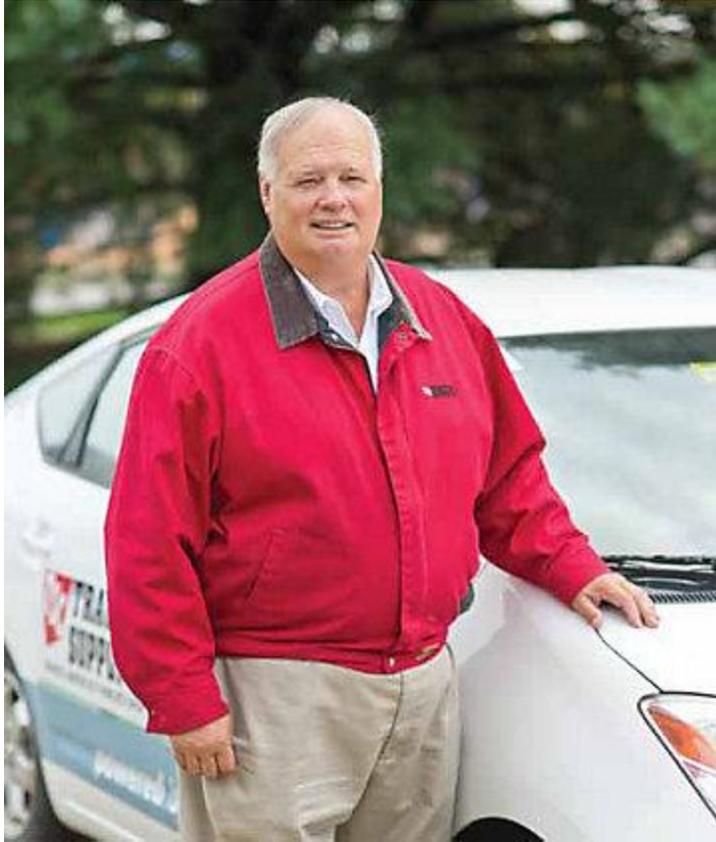
New Reusable Bag Designs Introduced

Three exciting new designs for the company's reusable bags have been created and are being introduced into stores. The first design, called "home grown," was shipped to stores in June. The other designs will be introduced in stores on a rolling basis over the next 12 months. The concept behind the new designs is to create a collector's series of bags to encourage customers to purchase each new design. The new designs were created by our marketing department.

Under the direction of Diane Bollig, store marketing manager, this important program supports the company's Stewardship Program in two ways—it helps the environment by reducing the number of disposable plastic bags that go to landfills and it supports 4-H, the country's largest youth organization. The company donates the profits from the sale of the bags to 4-H. With an expansive network reaching every corner of the country, including many of the communities where our customers live, 4-H programs enrich the lives of more than 6 million youth by teaching life skills, citizenship and leadership qualities.

Since the introduction of the reusable bag program in January 2011, more than \$100,000 has been raised to support 4-H programs. The reusable bag program is just one of a variety of ways Tractor Supply Company supports 4-H. Other programs include the 4-H Paper Clover program, which has raised more than \$1.6 million for 4-H in the past two years, corporate donations and numerous local fundraising events. Tractor Supply stores across the country also regularly host events for their local clubs.

Alternative Fuels: Ag Professor Strives to Run Cars on Water and Solar Energy



When Cliff Ricketts tells you that he can make a car run on water, he's not just blowing steam.

Ricketts, a dairyman's son who is now an agriculture professor, is indeed doing what he says he can do — and in a very big way.

Last March, Ricketts and a team of students from Middle Tennessee State University in Murfreesboro, Tenn., where he's taught since 1976, drove from the Atlantic to the Pacific, consuming only 2.15 gallons of gasoline among the three vehicles that were used to span the country. Powering them were ethanol fuel made from corn, electricity from solar panels and high-tech batteries, and his favorite alternative energy, hydrogen fuel, formed by removing the "H" from H₂O.

"My passion was always to run engines off water," Ricketts says. "I don't know what caused that, or why. I just wanted to do it." An advertisement for a hydrogen-powered dental torch in a magazine led him to consider splitting the molecules of water. "I said, 'well, if by gosh a dentist can do braces with hydrogen, I can run an engine off of hydrogen,'" he remembers thinking.

Ricketts smiles at the memory. He was a young, untenured assistant professor in the vocational agriculture department, asking the administration to buy him a \$1,600 dentist's device that he could tear apart to see how it worked. Ricketts' pitch must have been a home run, because he got the money.

"So we got down to the guts of it and it was basically a high school chemistry electrolysis unit that had the cathode and anode and so forth and so on," he says. Electrolysis is the process that separates the hydrogen and oxygen in water. On Oct. 14, 1978, Ricketts was ready to turn water into auto fuel. But the system didn't work. Something was amiss.

"I said, 'maybe we're not getting enough hydrogen,' so using our high-tech research funds we got a balloon, two pieces of plywood, and some duct tape," he recalls. "That's what every farmer has to do."

Ricketts and his student helper used duct tape to connect the matching pieces of plywood on one end. “We made an instrument to squeeze that hydrogen into the engine and, guess what, it ran for eight seconds,” he says. The next day they fashioned a bigger “squeeze” box, used a bigger balloon, and the engine ran for two minutes.

An experiment on the volatility of hydrogen, when it mixes with oxygen, gave him pause, however. He ignited a small mixture of the two gases and “it shook the building. I said, ‘whoa. That’s why they had problems with the Hindenburg.’”

So, in the name of safety, he and his students set out to find a way to produce, package, and consume hydrogen in a manner that wouldn’t destroy the vocational agriculture building on campus. An electrolysis unit big enough to produce the amount of hydrogen needed for his experiments was purchased; then came the tinkering with a variety of internal combustion engines so they could run on hydrogen.

“A lot of people think I’m a mechanical genius, but I’m not. I’m an educator,” Ricketts says.

“Basically, I know the concept I want. If I believe it’ll work then I assign one of my gifted mechanical students to it and tell ‘em what I want and just get out of their way. I become their coach,” he says.

Their first project was a tractor, followed by other engines. In 1991, when Ricketts was invited to enter a vehicle in a hydrogen-powered speed test at the Bonneville Salt Flats, MTSU’s modified truck reached 108 mph, setting a record that stood for many years.

Ricketts plans to drive another fuel-alternative car across the country next year; that vehicle again will be sponsored by Tractor Supply. “My goal next year — and if I do this, I think I’ve made my contribution to mankind — I think if the American public saw (that) a professor at MTSU went coast to coast on sun and water, people would say, ‘well, it can be done, let’s just make it work.’” Indeed, that’s his hope: millions of cars powered by hydrogen and solar energy.

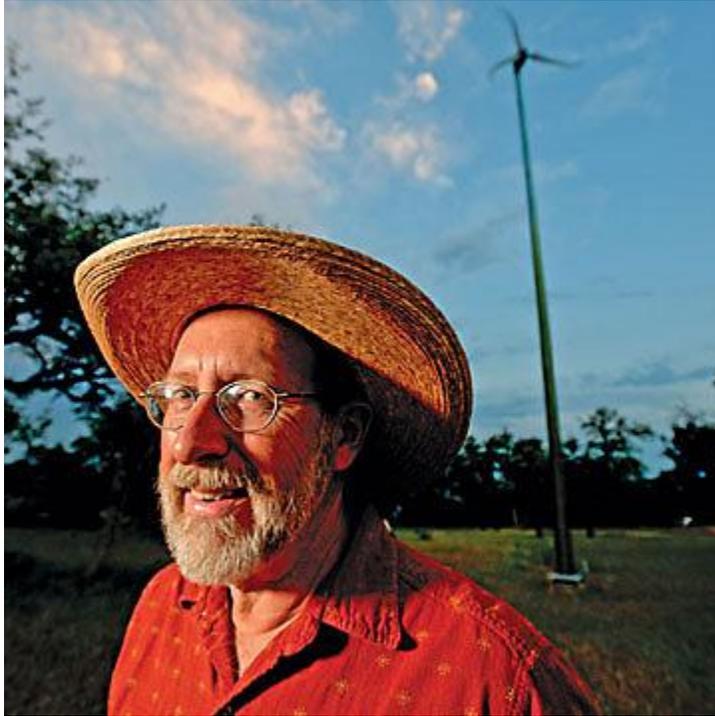
Alternative fuels have been part and parcel of Ricketts’ academic career. It’s what he’s known for. That’s fine enough of a career for him, says the professor, who plans to retire in two years.

Not that retirement means an end to his “thinking and tinkering.” He’ll continue to promote hydrogen as a fuel, Ricketts says. He’s also a consultant on a green algae biofuels project that could provide farmers with an alternative to high-priced diesel.

Running a tractor on algae? Ricketts simply nods his head, not surprised at all. Cliff Ricketts, professor at Middle Tennessee State University, has been involved in alternative fuels since 1978. And Tractor Supply has been right there with him most of the way. introduced into stores. The first design, called “home grown,” was shipped to stores in June. The other designs will be introduced in stores on a rolling basis over the next 12 months. The concept behind the new designs is to create a collector’s series of bags to encourage customers to purchase each new design. The new designs were created by our marketing department.

Homegrown Power: More Rural Landowners are Harnessing the Wind for Their Energy Needs.

By Leslie Vandivier
Photography - Kevin Vandivier



The wind turbine keeps a steady whirring as it catches the breeze atop the high mesa overlooking the Blanco and Pedernales River valleys in Texas Hill Country. The sound is as beautiful as a perfectly tuned baby grand to Bernard Mollberg, a master piano restorer who had the turbine installed on his 20-acre property.

"I like the whirring sound it makes, because when those blades are spinning, I know I'm saving money off my electric bill," he says with a laugh.

Mollberg, of Blanco, Texas, is among a growing number of private property owners who are investing in equipment to harness wind energy and lower their electric bills. Wind turbines were once associated primarily with large commercial wind farms in which dozens of the three-blade tubular steel towers convert kinetic energy from the wind into mechanical energy on a mass level.

Mollberg had a 45-foot Skystream wind turbine erected on his property in late 2010 to power all the buildings on his property and remains pleased with his decision.

"The process was simpler than I expected, and took just over 30 days from placing the first call to Robert Webb of Revolt Wind Power in Austin, to the final installation day," he says. "It was easy once they selected the best spot for the wind tower."

Rising energy costs are making more rural homeowners consider alternative power sources, such as the technology available in wind generators such as the Skystream, which is the first of its kind as a grid-tied unit, Webb says.

First, though, they usually need a primer in wind energy.

"Folks are curious about installing a wind generator on their land and confused about the difference between a windmill and a wind turbine," Webb says. "A wind turbine converts kinetic energy from the wind into mechanical energy. If the mechanical energy is used to produce electricity, it's known as a wind generator. If the mechanical energy is used to drive machinery, such as for grinding grain or pumping water, that's known as a windmill."

SUSTAINABLE HOMESTEAD

Mollberg's journey toward a simpler, more sustainable lifestyle began in the mid-90s when he became fed up with high energy costs and began educating himself on the principles of sustainable building and renewable energy.

"The more I studied, the more I became convinced that the greatest challenge our civilization faces is the transition from carbon-based fuels," he says.

So, in 1997, he ventured out to the Texas Hill Country, determined to reclaim his country roots dug deep in rural Blanco County long ago by his grandmother who'd been born there.

On top of his 1,700-foot mesa, he applied the sustainable principles he'd studied, beginning with the construction of his piano shop, with its adobe-style, foot-thick, rammed-earth walls and passive solar, which requires no pumps or fans to move the heat. He also designed and built a passive solar home and added a rainwater collection system to supply water for both home use and for their herb and flower gardens.

The turbine doesn't provide 100 percent of their energy needs, but it's doing what he intended.

"I'm not totally off the grid, but the wind power provides 20-35 percent of all our electricity needs," he says.

Sometimes, during breezier months, the turbine produces surplus electricity, providing a credit from his electric company toward future usage.

So now, instead of Mollberg paying rising energy costs, the electric company is paying him.

Leslie Vandivier is an Austin, Texas, writer.

CONSIDERING A WIND TURBINE?

If wind power might be for you, first have a site evaluation done by an expert to determine whether your property is in a suitable wind zone to successfully generate electricity, advises Robert Webb, of Revolt Wind Power in Austin, Texas.

Costs are as varied as the turbine models and the companies that install them, but for reference, a Skystream unit like Bernard Mollberg's is between \$18,000 and \$24,000 fully installed, depending on height and other variables.

You can seek funding assistance via grants and/or loans. The federal government offers incentives to eligible rural homeowners, farmers, and ranchers who invest in renewable energy devices. Mollberg, for example, received a federal tax credit in 2010 for 30 percent of his investment.

Visit these government websites for more information:

- energysavers.gov – Click on Public Services then Rebates, Tax Credits & Financing
- www.rurdev.usda.gov/BCP_Reap.html