U.S. SOY — A SUSTAINABILITY SYSTEM THAT DELIVERS

U.S. Soybean Farmers' Sustainability Report 2013

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HIGHLY EFFICIENT U.S. SOYBEAN PRODUCTION YIELDS ENVIRONMENTAL BENEFITS

The United States is a leading world producer of soybeans, growing roughly 80 million metric tons a year on 30 million hectares. As a result of sound science and continued research, U.S. soybean yields per planted hectare have increased 53 percent since 1980. In addition to providing a consistent supply of high-quality soybeans to customers around the world, highly efficient production methods combined with advanced conservation techniques have yielded environmental benefits.

U.S. soybean farmers are stewards of precious natural resources from which they provide a reliable supply of high-quality products with minimal impact on the environment. They are committed to conservation and the adoption of innovations that help them realize larger yields while using fewer natural resources.

Increasingly, consumers are concerned about the sustainability of the products they buy. This sustainability report shows how U.S. soybean farmers have reduced carbon emissions, energy use, greenhouse gas (GHG) emissions and soil erosion per unit of land as well as per unit of production over the past 32 years. It also highlights the industry's commitment to social responsibility and continuous improvement.

The U.S. soy family is committed to providing customers with verifiable information that demonstrates how U.S. soy is sustainably produced. We invite you to learn more about the sustainability of U.S. soy.

The U.S. Soybean Export Council

(USSEC represents and markets U.S. soy internationally. Its founding members include the American Soybean Association and the United Soybean Board. Funding for this U.S. Farmers' Sustainability Report was provided by these three organizations.)

FARMERS COMMIT TO U.S. SOYBEAN SUSTAINABILITY ASSURANCE PROTOCOL

The U.S. Soybean Sustainability Assurance Protocol (SSAP) was developed to address customers' expectations for sustainably produced products. The protocol identifies the regulations, processes and management practices that ensure sustainable soybean production in the United States.

U.S. soybean production is based on a national system of conservation laws and regulations combined with careful implementation of best production practices by the farmers who operate the 279,110 soybean farms in the United States. In addition, most U.S. soybean producers participate in certified and audited voluntary conservation programs.

The U.S. Soybean Export Council, the United Soybean Board and the American Soybean Association worked together to develop and implement the SSAP through a multi-stakeholder process to ensure the methodologies for measuring sustainable performance are highly robust, transparent and credible. The protocol covers biodiversity and high carbon stock production, production practices, public and labor health and welfare, and continuous improvement measures. The U.S. approach is quantifiable with aggregate (mass balance) international certification available.

The U.S. soybean industry regularly measures its performance in key areas of sustainability, and the data show U.S. soybean producers are having a positive impact on society and the environment.

Measurement and Audit Procedures

- Measurement system of environmental impacts
  - Life Cycle Assessment
  - Annual Field to Market Reports
- Annual internal audit by producers and a third party, independent audit by the United States Department of Agriculture-Farm Service Agency (USDA-FSA) of 8 to 11 percent of producers participating in the Farm Program (95 percent of U.S. soy producers participate in the USDA Farm Program.)

International Certification

Soy Export Sustainability, LLC will provide shipment-specific recordkeeping and documentation information of all U.S. soy and ensure proper accounting of the mass balance of U.S. soy compliant with the SSAP. Certification is done at shipment point on an aggregate system representing nationwide soybean production.

Performance Indicators

The following reports document producer performance:

Field to Market, Environmental and Socioeconomic Indicators for Measuring Outcomes of On-Farm Agricultural Production in the United States

Life Cycle Impact of Soybean Production and Soy Industrial Products

"THE SUBJECT OF THE SUSTAINABLE SUPPLY OF FEED MATERIALS IS TAKEN VERY SERIOUSLY IN EUROPE AND THE RESPONSE OF USSEC ON BEHALF OF U.S. SOYBEAN GROWERS IN PRODUCING ITS SOYBEAN SUSTAINABILITY ASSURANCE PROTOCOL IS VERY WELCOME AND TIMELY. THE PROTOCOL SHOWS ITS INTERNATIONAL CUSTOMERS THE SIGNIFICANT STEPS ALREADY MADE BY U.S. SOYBEAN GROWERS WITH RESPECT TO REDUCING THE ENVIRONMENTAL BURDEN OF GROWING SOYBEANS AND THAT THEY ARE COMMITTED TO CONTINUAL IMPROVEMENT."

— George Perrott, head of feed sector, Agricultural Industries Confederation, United Kingdom

CONTINUOUS IMPROVEMENT IN U.S. SOYBEAN SUSTAINABILITY PERFORMANCE

The U.S. has an unparalleled amount of public data gathered over many decades to support its sustainability position. Results from the December 2012 Field to Market Study by the Keystone Alliance for Sustainable Agriculture demonstrate how U.S. soybean producers have improved sustainability performance and increased efficiency over time in many important areas. The Field to Market data used throughout this U.S. Soybean Farmers' Sustainability Report have been updated to include the most recent 2012 crop year data. Trend lines over multiple decades show that U.S. soybean production is reducing environmental impacts per unit of output.

Trends in U.S. Production, Resource Use/Impact

Field To Market Data - over the study period 1980-2012

Yield Improvements (1980-2012)

- Total soybean production increased 96 percent
- Yield (metric ton per planted hectare) increased 53 percent

Resource Efficiency Per Metric Ton of Production (1980-2012)

- Land use per metric ton decreased 36 percent
- Soil erosion per metric ton decreased 65 percent
- Irrigation water applied per incremental metric ton decreased 42 percent
- Energy use per metric ton decreased 46 percent
- Greenhouse gas emissions per metric ton decreased 47 percent

Trend lines also show that soybean production is reducing environmental impacts on a per-hectare basis in every category.

Resource Use/Impact Per Hectare (1980-2012)

- Soil erosion per hectare decreased 41 percent
- Irrigation water applied per hectare decreased 10 percent
- Energy use per hectare decreased 14 percent
- Greenhouse gas emissions per hectare decreased 15 percent

Field to Market, the Keystone Alliance for Sustainable Agriculture, is a collaborative stakeholder group of producers, agribusinesses, food and retail companies, conservation and nonprofit organizations, universities and agency partners that are working together to define, measure and develop a supply-chain system for agricultural sustainability. It produces an annual report that presents environmental and socioeconomic indicators for measuring outcomes of on-farm agricultural production in the United States.

Field to Market (2012 V2). Environmental and Socioeconomic Indicators for Measuring Outcomes of On-Farm Agricultural Production in the United States: Second Report, (Version 2), December 2012.

U.S. FARMERS HAVE SOUND ENVIRONMENTAL OBJECTIVES

With most American farms passed from family generation to generation, U.S. farmers are partners in trust to protect their land. According to the latest USDA Census of Agriculture data, over 96 percent of farms and 84 percent of farmed hectares are family owned.

The U.S. is a global conservation leader based on its acceptance of technology, as well as innovative national and state regulations. U.S. farmers are conscientious stewards of the natural resources used to produce a high quality and abundant soybean crop. More than 95 percent of the U.S. soy crop is grown on land that follows the conservation requirements in the USDA Farm Program.

Conservation programs have been a part of our country's agricultural heritage for more than 75 years. Currently, the USDA invests over $6.5 billion annually in conservation programs that protect fragile lands, improve water and soil quality and enhance wildlife habitat. About 12,000 staff members work with U.S. farmers to develop site-specific, science-based conservation plans and monitor compliance. USDA's annual Compliance Status Review regularly shows compliance rates above 95 percent.

An array of U.S. laws and conservation programs provides a high level of confidence that U.S. soybeans are produced in a manner compliant with the sustainability performance demands of global customers.

Conservation Reserve Program (CRP) Accomplishments

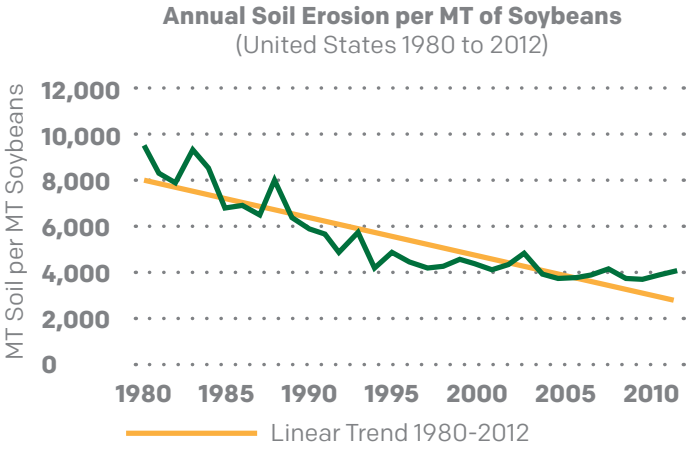
- 10.9 million hectares were enrolled in CRP as of June 2013. CRP acreage has been as high as 14.9 million hectares. Contract terms are 10-15 years.
- Restoration of more than 800,000 hectares of wetlands and associated riparian buffers
- Annual prevention of more than 270,000 metric tons of nitrogen and more than 54,000 metric tons of phosphorous flowing into the nation's streams, rivers and lakes
- Providing $2 billion annually to landowners, dollars that make their way into local economies, supporting small businesses and creating jobs
- CRP resulted in carbon sequestration equal to taking almost 10 million cars off the road in 2012. By placing vulnerable cropland into conservation, CRP sequesters carbon in plants and soil, and reduces both fuel and fertilizer usage
- CRP has helped increase pheasant, quail, duck, grouse and grassland bird populations

Conservation Stewardship Program

- American farmers have enrolled more than 20 million hectares in USDA's Conservation Stewardship Program, which helps producers deliver multiple conservation benefits on working lands.

Trends in U.S. Production, Resource Use/Impact, 1980-2012

Field to Market Data



Soil erosion per metric ton of soybean production decreased

65%

"WE'RE NO-TILLERS, SO WE DON'T DISTURB THE RESIDUE ON THE GROUND. IN THE SPRING, WE PLANT INTO THE RESIDUE. BY NOT DISTURBING THE RESIDUE, WE HAVE INCREASED THE SOIL MOISTURE, INCREASED THE ORGANIC MATTER, AND EVEN INCREASED THE WILDLIFE, MICROBES AND EARTHWORMS THAT LIVE IN THE SOIL."

— Laura Foell, Iowa soybean farmer and United Soybean Board director

"WE'RE CUTTING OUR PRODUCTION COSTS, WE'RE CUTTING FUEL USAGE AND WE'RE LEAVING LESS OF A CARBON FOOTPRINT IN EVERYTHING WE DO. THAT MAKES US PRODUCERS IN WHOM THE REST OF THE WORLD CAN HAVE FAITH."

— Keith Kemp, Ohio soybean farmer and United Soybean Board director

U.S. FARMERS TAKE SOCIAL RESPONSIBILITY SERIOUSLY

"MOST FARMS IN THE UNITED STATES ARE FAMILY OWNED AND FAMILY OPERATED, AND WE SEE IT AS A REAL BLESSING TO BE ABLE TO LIVE WHERE WE DO. WE ARE THANKFUL THAT WE CAN BE INVOLVED IN OUR CHURCHES, COMMUNITIES, SCHOOLS AND OUR FAMILIES' LIVES. IT'S A TRUE BLESSING TO LIVE IN RURAL AMERICA."

— Lewis Bainbridge, South Dakota soybean farmer and United Soybean Board secretary

Sustainable farming is more than complying with rules. It is an investment to ensure our children and grandchildren can continue to operate farms in a socially responsible manner and continue to be productive for many years to come.

U.S. soybean farmers embrace the U.S. government's long-term commitment to the protection of workers' rights, including fair wages, safety precautions and insurance. They also provide annual information on labor-related factors such as overtime hours and farm-related injuries.

U.S. soybean farmers comply with the Environmental Protection Agency's Worker Protection Standard for Agricultural Pesticides, which ensures safe use of pesticides for 2.5 million agricultural workers and pesticide handlers. Many farmers employ commercial applicators for pesticides. Farmers and agricultural workers who apply pesticides themselves must be licensed and receive training every three years.

U.S. farmers are well aware that their rich farmland coexists with a vast freshwater ecosystem of lakes, streams and rivers that are important to plants and animals, and are used for municipal water systems and recreation. As a result, farmers are active in local, state and national discussions and programs designed to protect and improve water quality.

U.S. soybean farmers are committed to improving human health worldwide through better access to safe, nutritious food.

U.S. soybean farmers are committed to enhancing the social and economic success of agriculture and rural communities.

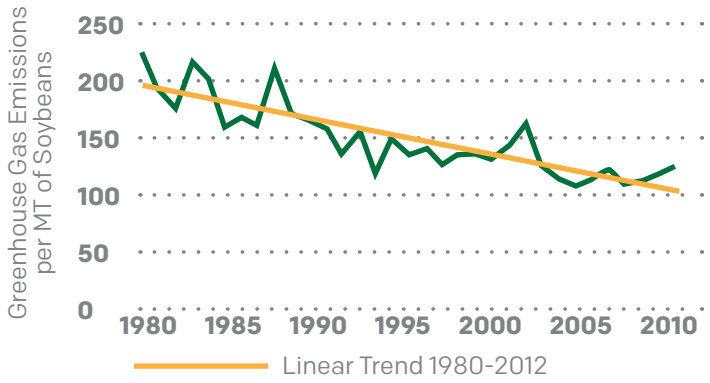
"BEING SUSTAINABLE IS TAKING EVEN THE MOST FRAGILE ELEMENTS OF LIFE AND USING THEM WISELY FOR MANY OTHER GENERATIONS TO ENJOY AND USE."

— Lawrence Sukalski, Minnesota soybean farmer and American Soybean Association Board director

Trends in U.S. Production, Resource Use/Impact, 1980-2012

Field to Market Data

Greenhouse Gas Emissions per MT of Soybeans
(United States 1980 to 2012)



Greenhouse gas emissions per metric ton of soybeans decreased

47%

U.S. FARMERS STRIVE FOR CONTINUOUS IMPROVEMENT IN AGRICULTURAL PRACTICES

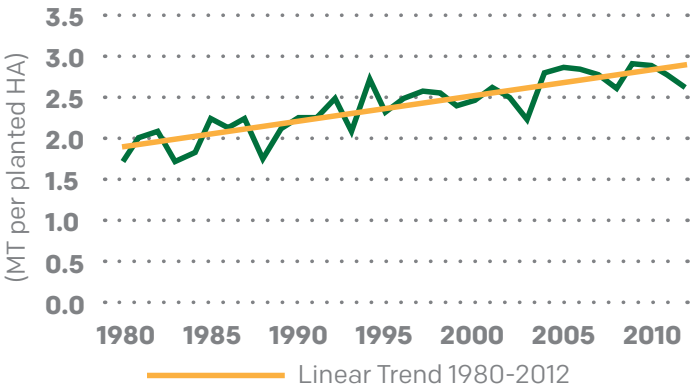
With assistance from public and private research organizations, professional agronomists and technology providers, U.S. soybean farmers continually adopt new products and practices to increase the yield and quality of their soybeans and to protect natural resources.

- They invest in sustainability through technology such as satellite positioning that allows farmers to be very precise with seed planting and application of fertilizer and crop protection products.
- Certified crop advisors help write prescriptions for each field. Each year, input and output maps are examined to determine where changes can be made to promote continuous improvement.
- Soybean seed technology and crop protection products continue to improve, preventing disease, decreasing insect and weed damage, and protecting against harsh weather.

Trends in U.S. Production, Resource Use/Impact, 1980-2012

Field to Market Data

Yield per Planted HA of Soybeans
(United States 1980 to 2012)

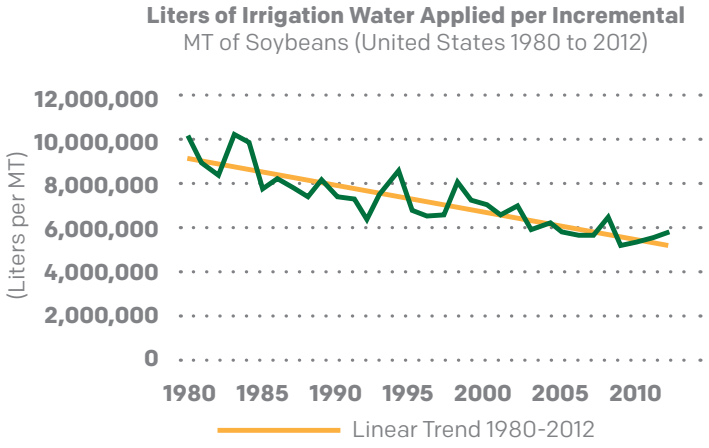


Soybean yield (metric tons per hectare) increased

53%

Trends in U.S. Production, Resource Use/Impact, 1980-2012

Field to Market Data

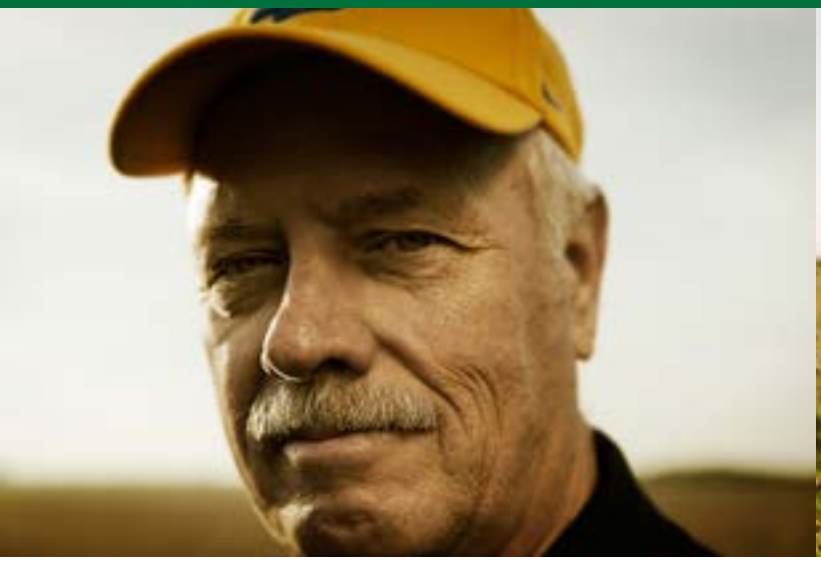


Irrigation water applied per incremental metric ton of soybean decreased

42%

"WE'RE SO SCIENTIFIC WITH OUR EQUIPMENT NOW; IT'S REALLY EXCITING. WITH AUTO STEER AND ALL THE OTHER ECO-FRIENDLY MONITORING TECHNOLOGIES, WE KNOW WE'RE NOT OVERLAPPING CROP PROTECTION OR NUTRIENT PRODUCTS ANYWHERE IN THE FIELD. WE HAVE ALSO REDUCED PESTICIDE AND INSECTICIDE USE WITH OUR BIOTECH CROPS. IT'S A NEW WAY OF FARMING AND WE WANT TO SHOW THE PUBLIC AND THE REST OF THE WORLD THAT WE ARE BEING VERY SUSTAINABLE, LEAVING A SMALLER ENVIRONMENTAL FOOTPRINT ON EVERYTHING WE DO."

— Keith Kemp, Ohio soybean farmer and United Soybean Board director



"MY SONS ARE THE FOURTH GENERATION ON THIS PARTICULAR SPOT ON EARTH, SO IN ORDER TO BE SUSTAINABLE SOCIALLY AS WELL AS ENVIRONMENTALLY, WE HAVE TO BE ECONOMICALLY SUSTAINABLE ALSO. WE ARE ALWAYS LOOKING FOR WAYS TO IMPROVE BY REDUCING INPUTS."

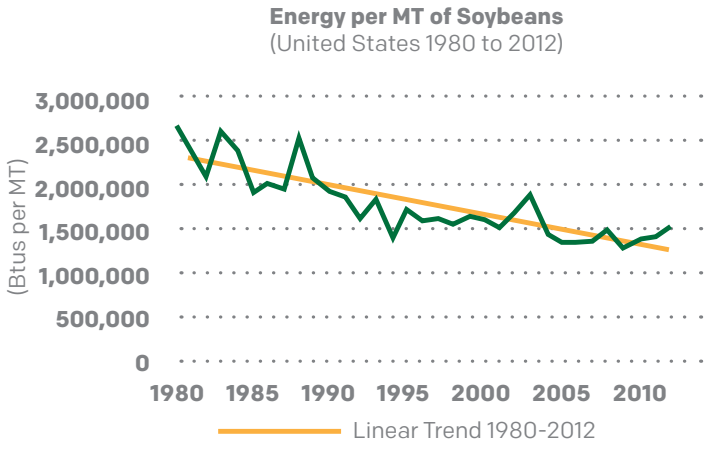
— Lewis Bainbridge, South Dakota soybean farmer and United Soybean Board secretary

"ONE OF THE WAYS WE CONTINUE TO IMPROVE OUR PRODUCTS IS TO DEVELOP SEEDS THAT PRODUCE SOY WITH INCREASED PROTEIN AND OIL. WE ALSO HAVE NEW VARIETIES COMING WITH IMPROVED OIL CHARACTERISTICS FOR HEART-HEALTHY FOODS."

— Laura Foell, Iowa soybean farmer and United Soybean Board director

Trends in U.S. Production, Resource Use/Impact, 1980-2012

Field to Market Data



Energy use per metric ton of soybeans decreased

46%

U.S. FARMERS VALIDATE SUSTAINABILITY PERFORMANCE

Using comprehensive data sources including publically available, national-scale data, as well as farm-specific data, the U.S. soybean industry has quantified its sustainability performance against critical metrics over the past 20 years. Independent, peer-reviewed research verifies the industry has been, and continues, improving its sustainability performance. Here are a couple of the comprehensive public data sources used to measure performance:

- U.S. farmers are required to provide annual compliance statements, which the Farm Service Agency (FSA) audits each year. USDA uses its annual Compliance Status Review (CSR) to monitor farmer performance with conservation standards. Farmers who do not meet compliance requirements risk losing federal farm program payments.
- The National Agricultural Statistics Service conducts the U.S. Census of Agriculture every five years, providing a source of consistent, comparable and detailed agricultural data for every U.S. county.

agcensus.usda.gov

USDA Publications 2007 Full Report

"THE PROTOCOL SHOWS AMERICAN FARMERS' DEDICATION TO SUSTAINING THE NATURAL RESOURCES AND RURAL COMMUNITIES THAT ARE SO IMPORTANT TO EVERYONE, AND WE'RE BACKING IT UP WITH THIRD-PARTY MEASUREMENT AND VERIFICATION SO OUR CUSTOMERS HAVE CONFIDENCE IN U.S. SOYBEANS."

— Richard Fordyce, Missouri soybean farmer and chair of the USB Freedom to Operate Action Team

"FARMERS ARE LEAVING A LOT MORE RESIDUE ON THEIR FIELDS, AND WE ARE SEEING MUCH LESS SOIL EROSION. THEY ARE IN THE BUSINESS OF PRODUCING FOOD EFFICIENTLY, AND THEY WANT TO PASS THE FARM DOWN TO THE NEXT GENERATION SO THEY DON'T WANT TO ROB THEIR SOIL."

— Greg Johanson, soil and water technician, Martin County, Minnesota Soil and Water Conservation District

LIFE CYCLE ASSESSMENT AVAILABLE FOR SOYBEANS, SOYBEAN MEAL AND SOYBEAN OIL

Life Cycle Assessment (LCA) is a technique to assess environmental impacts associated with all stages of a product's life.

Soy is one of only a few commodities with a completed LCA, and it is the first and only U.S. commodity on Europe's ecoinvent database, the major clearinghouse for international food and feed companies doing life cycle assessments. The LCA is currently available in all major databases of life cycle information.

The United Soybean Board's Life Cycle Assessment for soy production and processing in the U.S. provides "cradle-to-gate" life cycle information to LCA practitioners who wish to conduct modeling of downstream soy food and industrial products, and compare those results and impacts with those of other food and industrial products. The data is available for whole soybeans, soybean meal and refined soybean oil production.

The LCA has been peer reviewed by a group of international reviewers to verify that the project was performed in accordance with ISO 14040 and 14044 standards to ensure credibility and objectivity of the data and results. Reviewers included Martin Patel, Ph.D., of Utrecht University (chairperson) and Michael Levy of the American Chemistry Council.

Soybean Production and Contribution Assessment

According to the LCA data, the direct energy (farm tractor diesel and gasoline, electricity and natural gas) used to produce soybeans in the United States dropped approximately 20 percent compared to numbers calculated in 1998. In addition, soybean production actually reduces global warming potential and CO2 losses because of soybeans' nitrogen-fixing capabilities. Data on eutrophication and smog formation potential and water usage are also provided in the LCA.

"AS THE SECOND LARGEST SUPERMARKET IN THE U.K., WE FEEL STRONGLY THAT SUSTAINABILITY IS A CRUCIAL PART OF PROVIDING OUR CUSTOMERS WITH INNOVATIVE, HEALTHY AND AFFORDABLE FOOD. SINCE 2005, ASDA HAS MADE GREAT STRIDES IN REDUCING OUR OWN CARBON IMPACTS. THE U.S. SOY INDUSTRY HAS BEEN PROGRESSIVE IN DEVELOPING THE SOYBEAN SUSTAINABILITY ASSURANCE PROTOCOL AND A LIFE CYCLE ASSESSMENT THAT IS COMPREHENSIVE, MEASURABLE AND AUDITED. IT'S ENCOURAGING TO SEE AMERICAN FARMERS REDUCING ENVIRONMENTAL IMPACTS PER UNIT OF SOYBEAN PRODUCTION."

— Chris Brown, sustainable business director, ASDA, a subsidiary of Walmart