

COTTON
LEADSTM



COTTON LEADS™

Cotton LEADS™

is a program that is committed to
responsibly-produced cotton.



LEADS

Built upon core principles that are consistent with sustainability, the use of best practices and traceability in the supply chain, the Cotton LEADS™ program offers cotton users the confidence and knowledge that their raw material is responsibly produced and identified. Specify the Cotton LEADS™ program as one of your preferred cottons, at no cost to your organization, and join Australia and the United States of America in leading the way towards responsible cotton production.

COMMITMENT

RECOGNITION

UNDERSTANDING

BELIEF

CONFIDENCE





5 CORE PRINCIPLES OF THE COTTON LEADS™ PROGRAM

COMMITMENT

to the social, environmental, economic and regulatory factors required to produce world-class cotton.

RECOGNITION

that sustainable and responsible cotton production requires continual improvement, investment, research and sharing of best practices information among growers and industry.

UNDERSTANDING

that leading change in responsible and sustainable cotton practices will have the most positive impact when implemented in collaboration among farm, regional, national and international programs.

BELIEF

in the benefit of working cooperatively with similar programs that seek to advance responsible and sustainable cotton production in an effort to keep global cotton competitive in world fiber markets.

CONFIDENCE

in cotton identification systems that ensure traceability from farm to manufacturer.

NATIONAL CAPABILITIES

The Cotton LEADS™ program is based on the belief that national efforts create large-scale opportunities for responsible cotton production. That's the Cotton LEADS™ difference. Positive change and continual improvement are being promoted and measured at national levels, providing accountability and ensuring progress.

REGULATION

Strong regulatory and compliance systems.

COMMUNICATION

Direct and comprehensive communication and extension with industry and producers.

INVESTMENT

Industry-wide investments in leading technology, research and innovation.

IMPROVEMENT

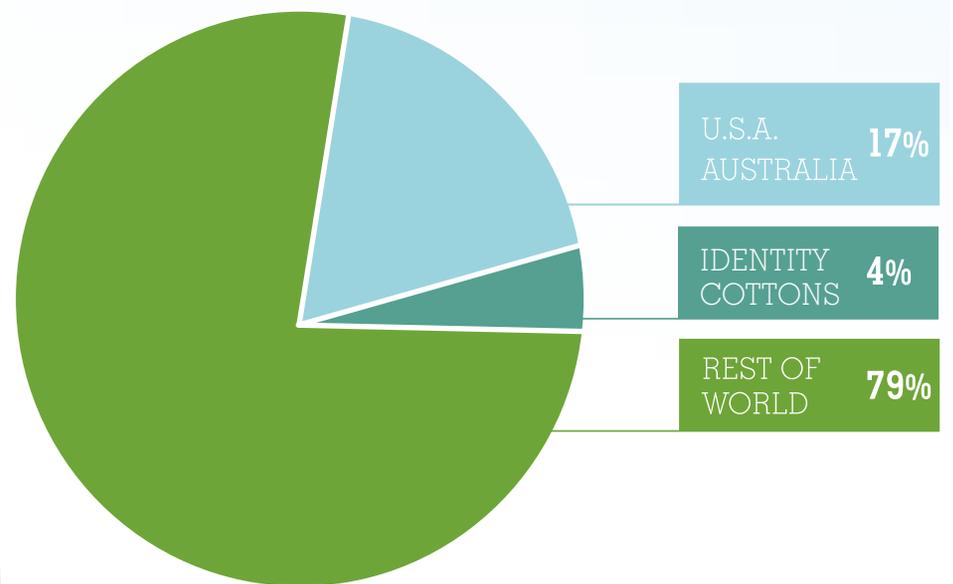
National-level data, measures for continual improvement.

	AUSTRALIA	UNITED STATES
LABOR REGULATIONS	✓	✓
CONSUMER SAFETY	✓	✓
FOOD SAFETY	✓	✓
WORKPLACE SAFETY	✓	✓
CHILD PROTECTION	✓	✓
PESTICIDE REGULATION	✓	✓
WATER STEWARDSHIP	✓	✓
CONSERVATION PROGRAMS	✓	✓

BUILDING A NATIONAL AND GLOBAL VIEW OF **RESPONSIBLE COTTON PRODUCTION**

With more than 20 million cotton producers in 77 countries, sustainability initiatives that work at the farm level face challenges due to the high cost of providing individual farm assistance and the overhead costs of certification. Although these initiatives are well intentioned, they represent only small volumes and may result in increased costs throughout the supply chain. The Cotton LEADS™ program offers the global cotton industry a solution to increase the supply of responsibly-produced cottons by including cottons from countries that demonstrate responsible production practices. Cottons currently in the program are produced in Australia and the United States of America.

COTTON
LEADS™
COTTONS **17%**



RELATIVE SHARE OF
WORLD COTTONS

COTTON LEADS™

COTTONS

The Cotton LEADS™ program includes upland and pima cotton varieties grown in Australia and the United States. Cottons can be conventionally grown and organically grown.

CONVENTIONALLY GROWN

Often described as modern and efficient cotton, these cottons are readily available on the world market. Conventional cottons can be grown using combinations of biotechnology, conservation tillage, non-synthetic and synthetic inputs, integrated pest management and cutting edge technologies to maximize efficiencies. The use of these modern technologies has resulted in tremendous gains in yield, enhanced fiber quality and more sustainable cotton production.

81%
of the world's
cotton crop is grown
with transgenic
varieties.

ORGANICALLY GROWN

Refers to a method of farming without the use of synthetic inputs or biotechnology. Organic production relies primarily on non-synthetic pesticides for pest control, hand hoeing and tillage for weed control, and the use of manures and legume cover crops for fertilizers. Organic cotton is produced within a set of strict standards and management practices, enforced through audits and field inspections by national organizations.

IN AUSTRALIA,

cotton growers produce high yielding, high quality, contamination-free cotton, largely due to leading production practices and an industry-wide commitment to continuous improvement. Australia's cotton industry is regulated by a highly stable and extensive government and a strict legislative framework is applied at federal, state and local government levels. Industry organizations also work to implement regulations and ensure compliance.

The Office of the Gene Technology Regulator (OGTR) approves and monitors the use of biotechnology, and the Australian Pest and Veterinary Medicines Authority (APVMA) regulates the registration and use of pesticides. Other legislative and monitoring agencies include the Federal Departments of Environment, Agriculture and Employment, Food Standards Australia New Zealand (FSANZ), State Environmental Protection Authorities, the Fair Work Ombudsman and Safe Work Australia.



myBMP

Leaders in Environmental Stewardship

The Australian cotton industry's flagship environmental program, myBMP (Best Management Practices) has radically changed the way cotton is grown in Australia. myBMP is the main vehicle for transferring research and development into tools for growers to achieve best practice and maximize efficiency on the farm. This program is used as a model for environmental management in other industries. Australia's cotton industry has continuously improved its environmental performance for over 20 years, and has a united vision for further positive change. No other agricultural industry in Australia has so closely monitored its environmental track record or been as responsive to on-farm change through best management practices.

Independent Environmental Assessment

of the Australian Cotton Industry 1990-2013 finds:

- ✓ Substantial reduction in chemical use
- ✓ Major gains in water use efficiency of 3-4% per year
- ✓ Improved soil and native vegetation management
- ✓ Significant uptake of integrated pest management (IPM)



A WATER-EFFICIENT INDUSTRY

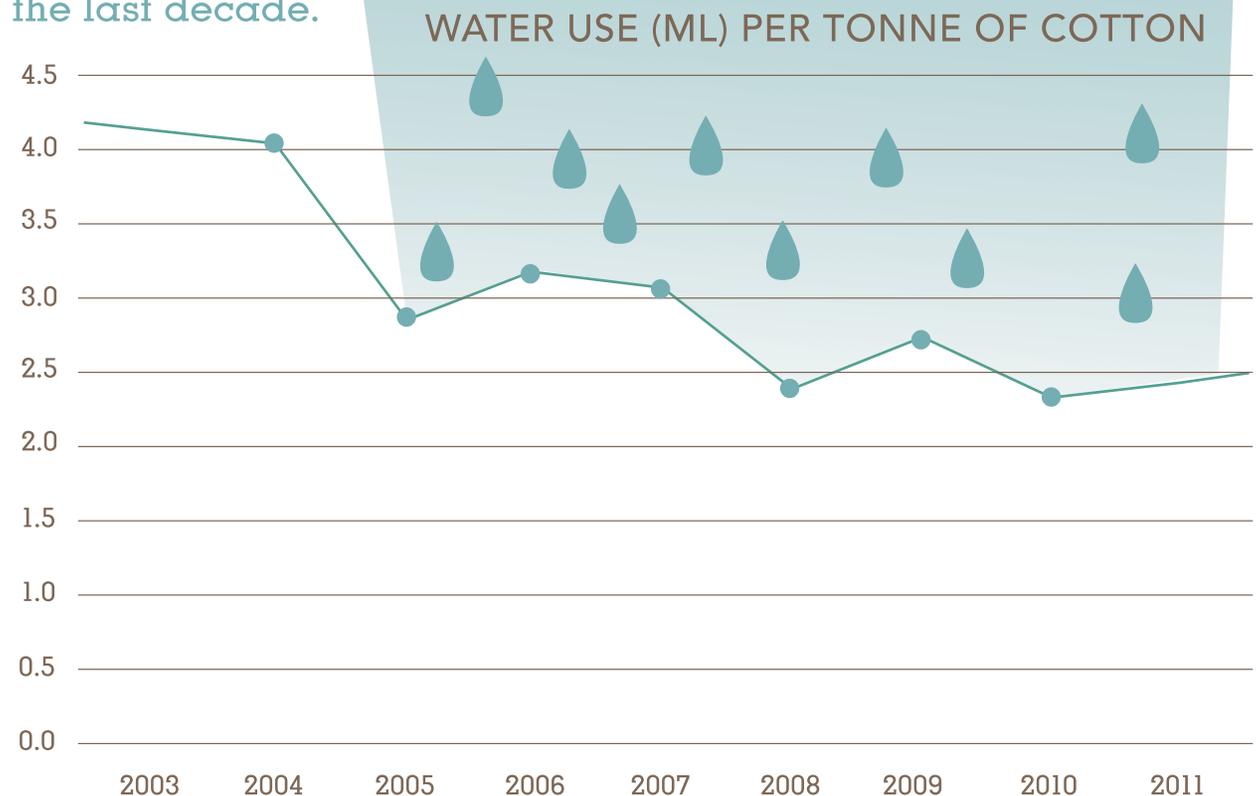
More Crop per Drop.

40%
less water

The Australian cotton industry has achieved a 40% increase in water productivity over the last decade.



Australia's cotton industry is considered among the most water-efficient in the world. Appropriate varieties, a world-class research effort, use of the latest technologies and cutting edge farm practices all combine to produce Australian cotton fiber that is farmed with less water per hectare than at any other time in history.



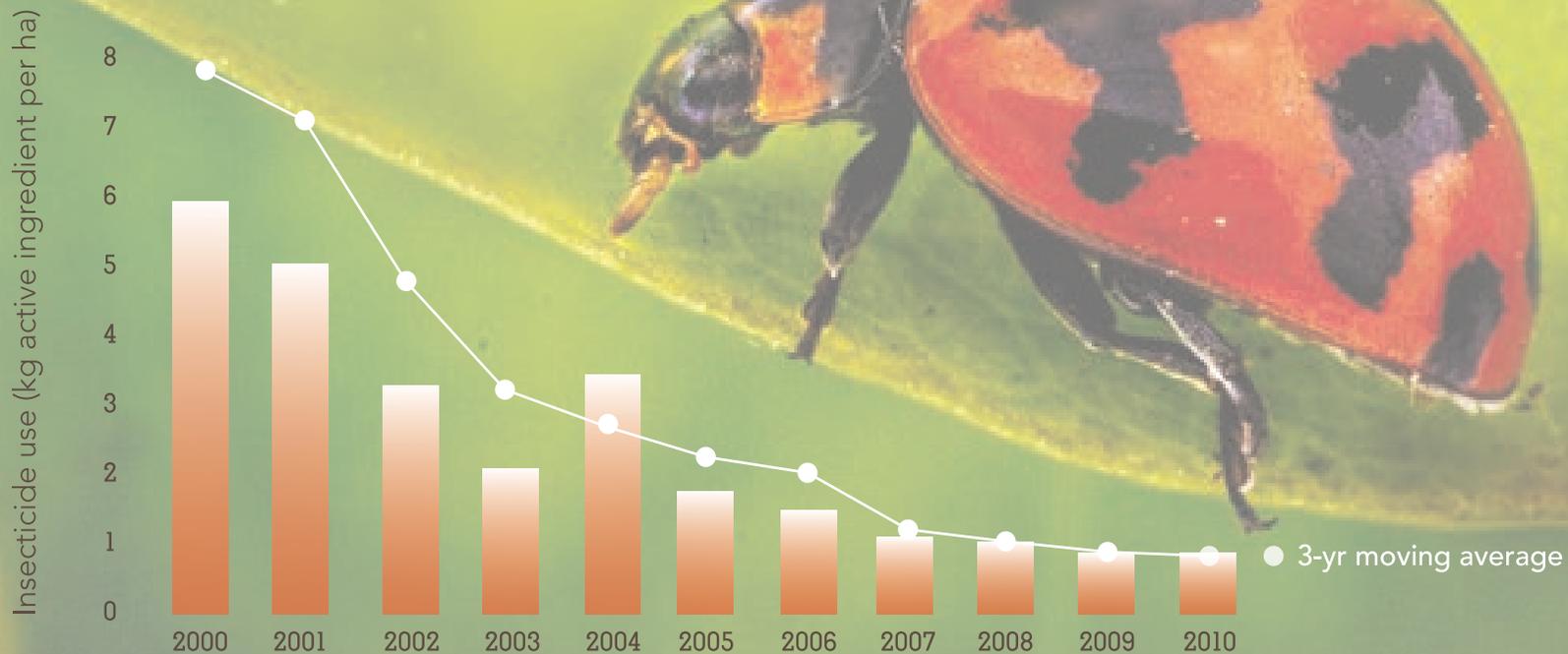
PEST MANAGEMENT

Protecting Our Crops with Less

In Australia, over 100 types of pests attack cotton. If these pests are left unmanaged, crops are badly damaged, resulting in major yield and quality losses.

Australian cotton growers use a combination of integrated pest management (IPM) techniques and biotechnology to control pests with a major focus on reducing the need for traditional chemicals.

89% reduction in insecticide use over the past 15 years.



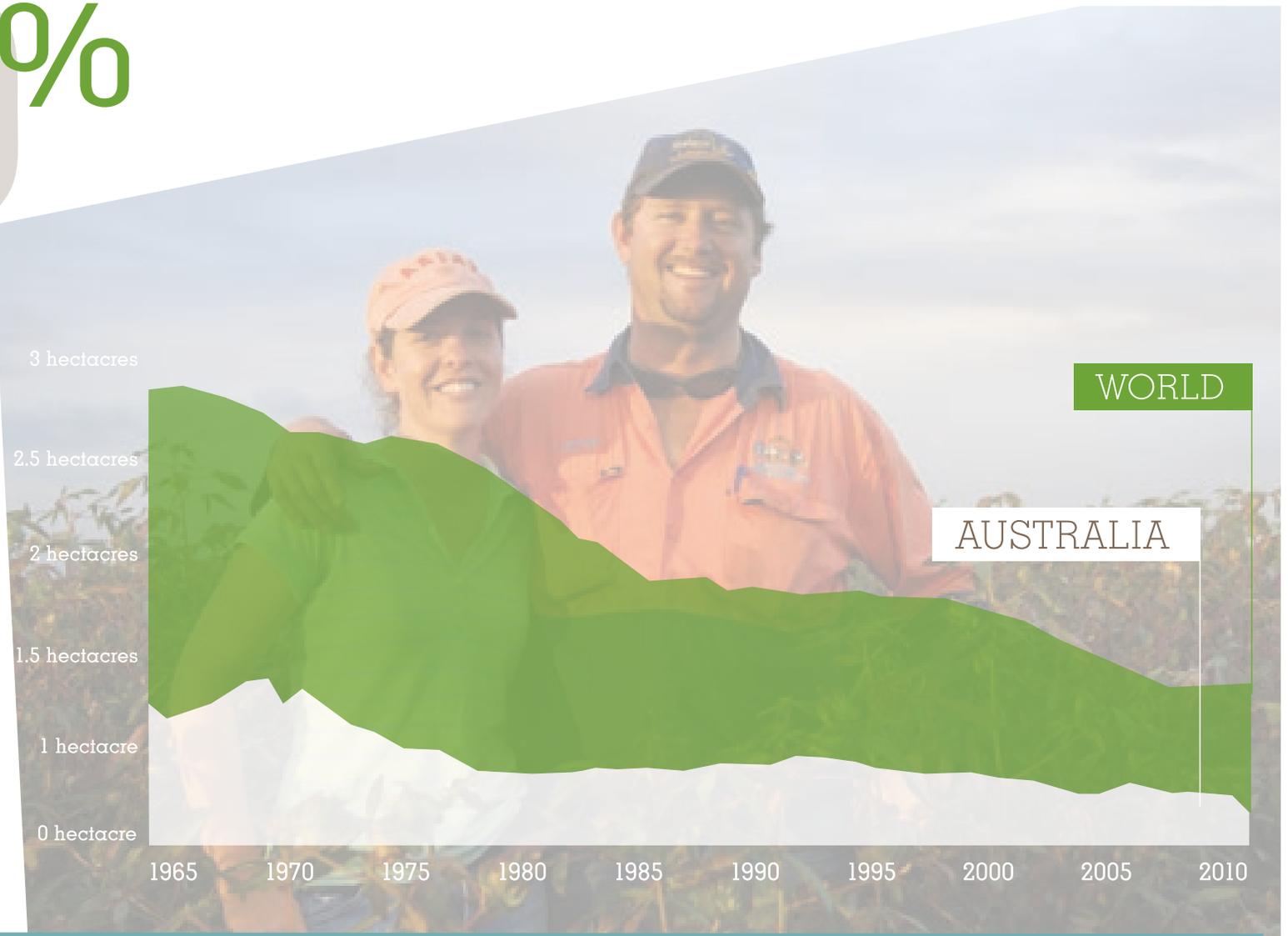
LAND USE & SOIL CONSERVATION

Carefully Grown, More with Less

Australian cotton is grown by about 1,250 family farmers in some of the country's most productive agricultural regions. Today's modern cotton industry is efficient, community minded, resilient and technologically advanced.

30%

less land is required to produce one tonne of cotton lint compared to 1999.



Nearly three times less land is required to produce one metric tonne of cotton fiber compared to the rest of the world. In 2012-13, Australia produced world record cotton yields of over 2,354 kg/hectare.

Healthy, Biodiverse Farms

Biodiversity refers to the variety of life forms found in an environment including animals, plants, bacteria and other micro-organisms. Largely due to best management practices from growers, Australia's cotton farms contain vibrant, active ecosystems where both nature and cotton production can happily thrive.

Most Australian cotton growers use zero or minimum tillage and crop rotations to conserve and improve soil health.



40% of the area on an Australian cotton farm is native vegetation.



Over 300 native bird species are found in cotton-growing regions, representing more than one-third of all Australian land birds.

REDUCING OUR CARBON FOOTPRINT

Despite being a very minor contributor to agriculture's greenhouse gas emissions, the Australian cotton industry has invested in climate change research to understand further opportunities for cotton farms to reduce or capture emissions.

Cotton growing has a better than neutral carbon footprint. Net on-farm emissions of GHGs in cotton growing are actually negative because the plant stores more carbon (for example in the lint and seed) than is released from fuel and fertilizer use during growth.

Australian cotton growers continue to improve energy efficiency and reduce greenhouse gas emissions through innovations like:

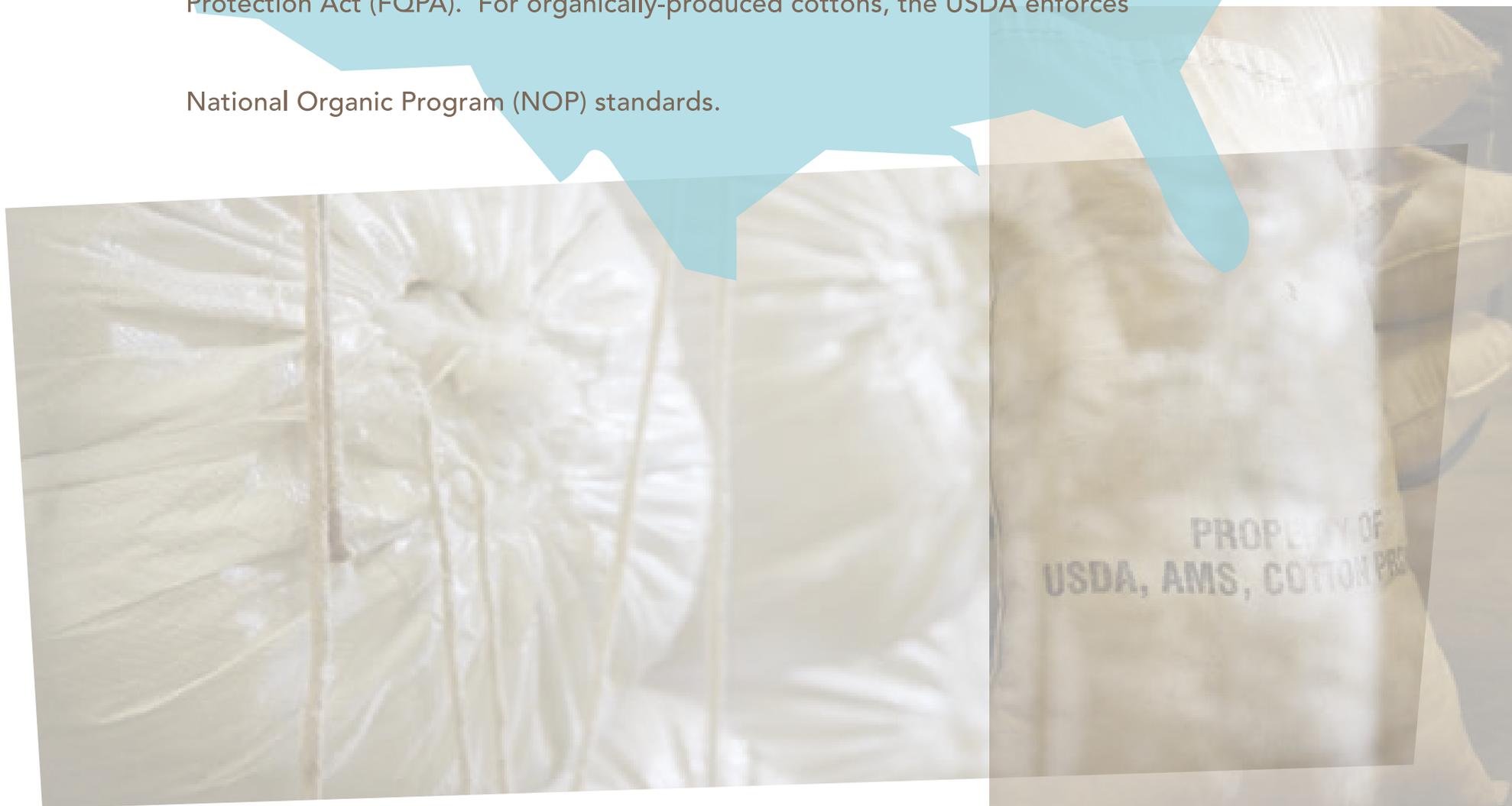
- ✓ Fuel-efficient farm machinery
- ✓ Controlled traffic systems
- ✓ Round module pickers
- ✓ Minimum-tillage systems

On-farm case studies have indicated that adoption of minimum tillage has reduced energy costs and greenhouse emissions by 12% since 2000.



IN THE U.S.,

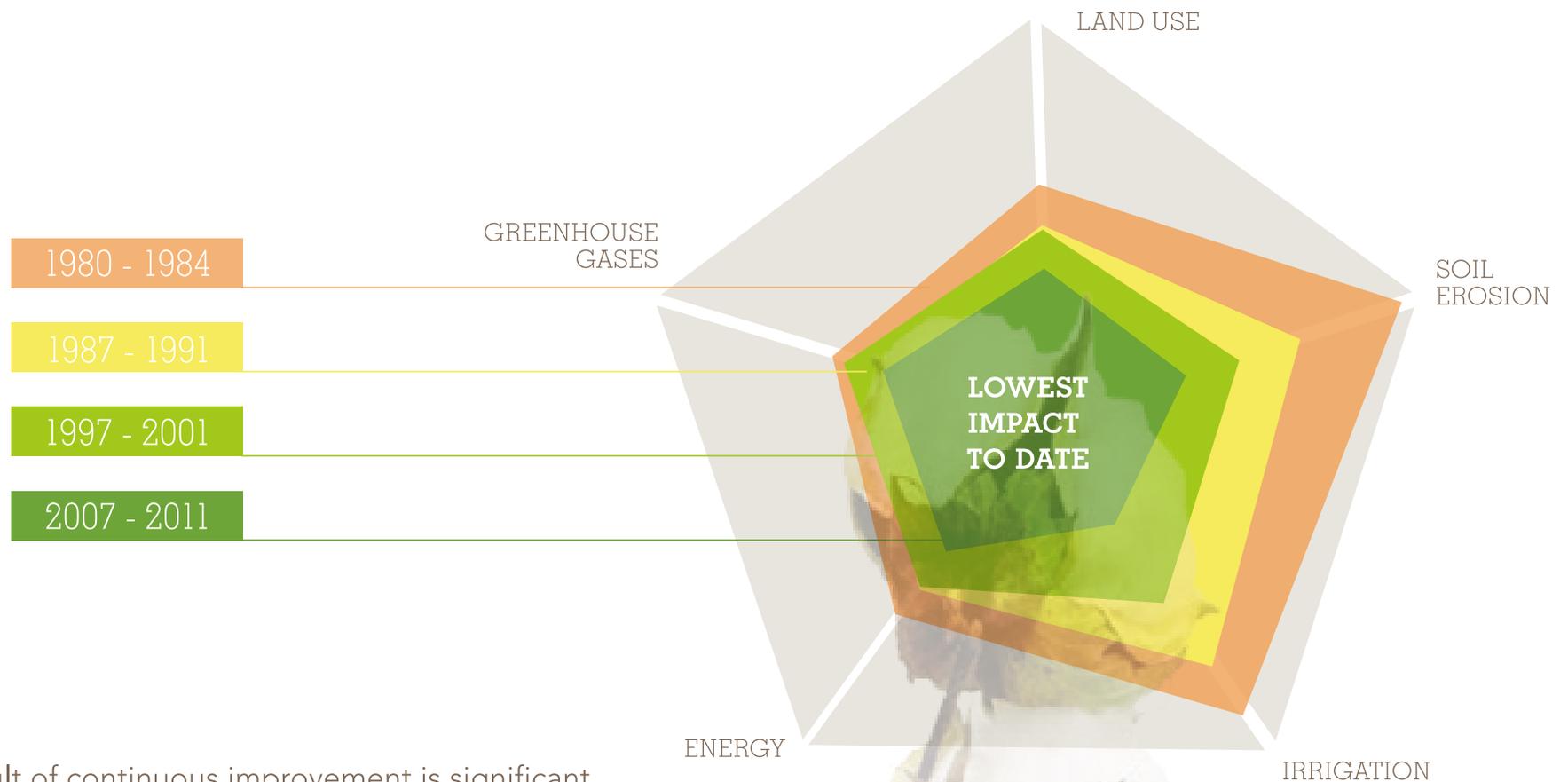
both conventional and organic cotton are food crops and are regulated by government agencies, including the Food and Drug Administration (FDA), the United States Department of Agriculture (USDA), and the Environmental Protection Agency (EPA), in the same way as other food crops under the provisions of the U.S. Food Quality Protection Act (FQPA). For organically-produced cottons, the USDA enforces National Organic Program (NOP) standards.



IMPROVEMENT

IN RESOURCE EFFICIENCY
FROM 1980 TO 2011

Cotton production in the United States continues to lead in the implementation of best management practices and continual improvement in key environmental indicators.



The result of continuous improvement is significant reductions in all five resources to produce one kilogram of cotton fiber and 1.4 kilograms of seed.

Land use	30% reduction
Soil erosion	68% reduction
Irrigation water applied	75% reduction
Energy use	31% reduction
Greenhouse gas emissions	22% reduction

Results presented per unit of production.

"Field to Market: The Keystone Alliance for Sustainable Agriculture, 2012 Report"

WATER

In the U.S., cotton is grown both with and without irrigation. Cotton only accounts for about 4% of the agricultural water use in the U.S. and is often grown because it is the only crop sufficiently tolerant to drought to grow in a region such as West Texas, without irrigation.

81%

of U.S. cotton producers recognize the need for efficient irrigation. From 1988 to 2008, the percentage of irrigation delivered by efficient water delivery systems more than tripled in the U.S.

Since 1980, irrigation water applied per pound of cotton has declined.

75%

1980



2011



PEST MANAGEMENT

Pesticides, including herbicides, insecticides and fungicides, help farmers around the world stabilize yields in order to produce an abundant and affordable supply of food and fiber by preventing crop losses due to weeds, pests and diseases.

In the U.S.,
there has
been a

50%

reduction
in the number
of insecticide
applications
over the last
25 years.



According to a survey of U.S. cotton growers in 2008, 44% of U.S. cotton farms had fields that required no foliar insecticides and nearly one-third of U.S. cotton acreage required absolutely no insecticide applications at all. Only about 5.17 grams of total pesticides are applied per kilogram of U.S. cotton produced, on average.

LAND USE & SOIL CONSERVATION

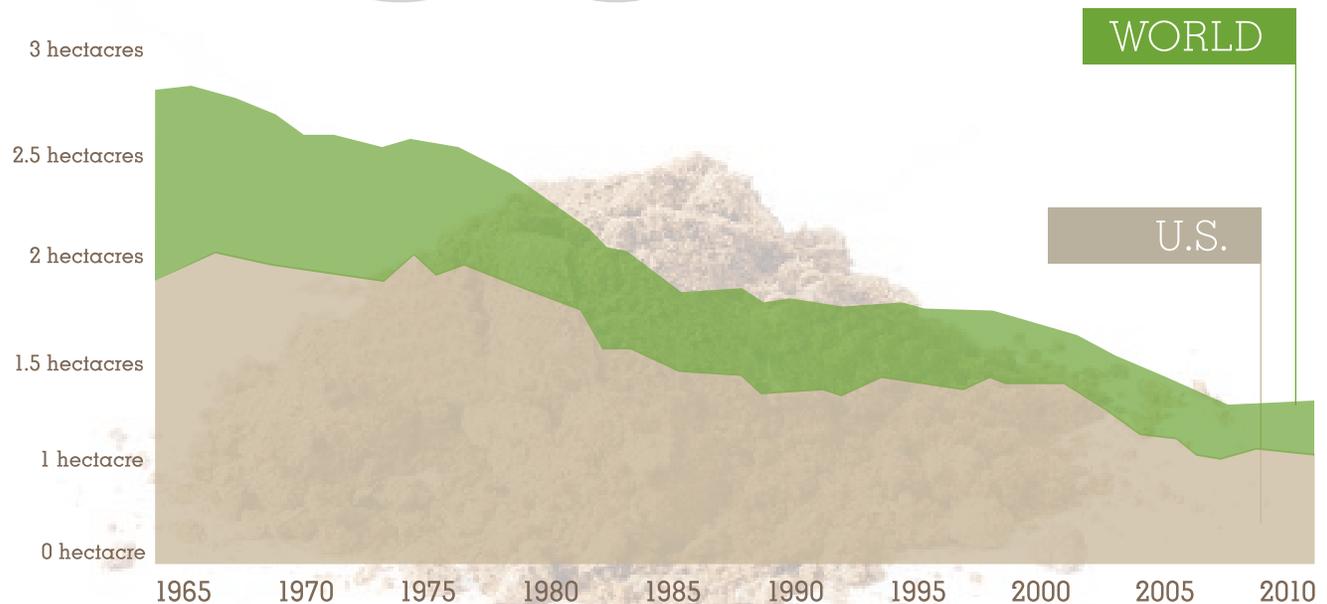
Due to technological advances in production and best management practices in the U.S., cotton yields have doubled and land devoted to cotton production has declined over time.

Soil conservation is the prevention of soil losses due to natural elements such as wind and rain. Modern production practices allow cotton growers to achieve high levels of soil conservation and input efficiencies that both increase yield and reduce production cost.

In the U.S., there has been a

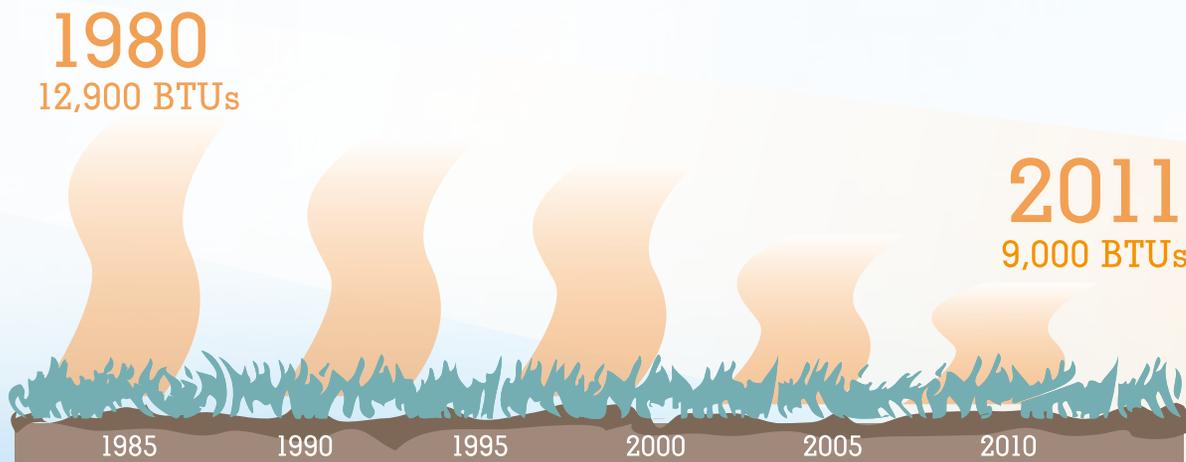
30%

reduction in land required to produce one kilogram of cotton lint since 1980.



Two-thirds of U.S. growers use some form of conservation tillage and soil loss has been reduced by 68% in the last 30 years.

ENERGY REDUCTION



In the U.S.,
there has been a

31%

improvement
in energy use
per kilogram
of cotton lint.

From field to bale,
cotton production is energy positive.

The energy required to produce cotton is actually less than the energy stored in the cottonseed. Stored energy can be captured directly, such as biodiesel or other biofuels, or indirectly as feed for dairy cows and aquaculture. About 1,400 kilograms of seed are produced per hectare of cotton, on average in the U.S., which equates to over 220 liters of biodiesel per hectare. The total energy stored in the cottonseed is more than required to grow and gin the cotton crop.



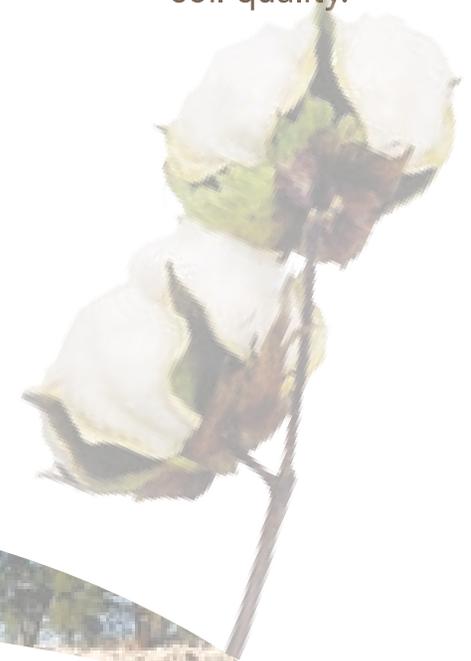
GREENHOUSE GAS

Energy conserving innovations such as reduced number of tillage passes and more efficient irrigation systems have reduced greenhouse gas emissions.

There is more carbon stored in cotton fiber and soil than emitted during production.

In the U.S.,
there has been a
22%
improvement
per kilogram
since 1980.

Conservation tillage has increased the amount of CO₂ captured from the air into the soil, improving soil quality.



TRACEABILITY

From the field to the mill, the Cotton LEADS™ program is leading the way in traceable, transparent and efficient cotton production. Comprehensive tracking and identification systems are in place throughout the cotton production supply chain in both Australia and the U.S.

Cotton produced in Australia and the U.S. is identified on-farm by a module ticket. When the cotton is ginned, each bale is assigned a unique bale identification number. In Australia, the bale identification is linked to the module and cotton quality data. In the U.S., the bale identification is linked to the gin, classing office and cotton quality data.



These identification programs are already established and create transparency throughout the production supply chain.

1

HARVESTING

Harvested cotton is formed into large rectangular or round units called modules. In both Australia and the U.S., each module is identified by a module identification tag, allowing the gin to link a module to the location where it was grown.



2

GINNING

Upon arrival at the gin, each module identification is logged into a database. After ginning, each bale is labeled with a permanent bale identification tag. A sample, taken from each side of the bale, is collected and identified with the same number. In Australia, samples are sent to a number of independent classing offices, and in the U.S., to one of ten USDA classing offices.



3

CLASSING

Classing offices receive bale samples from the gin and measure the fiber properties of each sample. In Australia, all cotton is tested on HVI (high volume instrument), and color and leaf grade is assigned according to the USDA Universal standards in independent classing offices that are accredited under Best Management Practices (BMP). In the U.S., all cotton is tested using HVI methods by the USDA. Australian quality data is available from the merchant shipper, and U.S. cotton quality data is available from the USDA database.



4

IDENTIFICATION

Every bale of cotton that enters the market from Australia and the U.S. is labeled with a unique bale identification number and barcode identifier. In Australia, the identification number and barcode identifies the unique bale and links it to both the farm and gin. In the U.S., the identification number identifies the gin, classing office and unique bale.



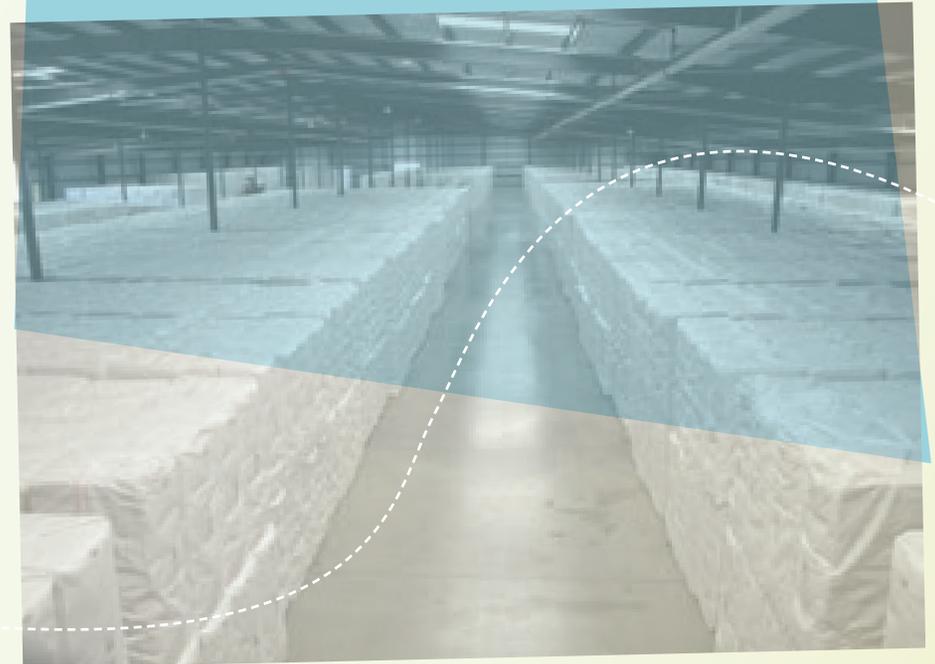
Breakdown of Permanent Bale ID (PBI):

Classing Office	Gin Code	Bale Identification
40	365	0009957

5

WAREHOUSE

In Australia, after ginning, cotton bales are labeled, classed and warehoused ready for shipment. In the U.S., after ginning and classing, cotton bales are warehoused and ready for purchase. Cotton purchases and sales are typically managed by merchants, as well as cooperatives in the U.S. Spinning mills have the ability to trace bales back to their origin and can access data on each bale.



LEADING *THE WAY*



TRACEABLE
TRANSPARENT
EFFICIENT

LEADING CHANGE *AND IMPROVEMENT*

The Cotton LEADS™ program represents a commitment to cotton that is leading the way in responsible production practices. Part of that leadership is a commitment among Cotton LEADS™ partners to share information and best practices that can contribute to an overall improvement in the global conditions for producing cotton.

A close-up photograph of several cotton bolls on a branch. The bolls are white and fluffy, with some showing the brown, fibrous base. The background is a soft, out-of-focus light blue and green.

The Cotton LEADS™ program is committed to working with national and international organizations that have similar principles and objectives.

BEYOND *AGRICULTURE*



The Cotton LEADS™ program is actively involved in benchmarking beyond the agriculture boundary. The Cotton Life Cycle Inventory (LCI) aims to provide a global comprehensive inventory of data relating to cotton production and textile manufacturing. The associated Life Cycle Assessment (LCA) utilizes global LCI data to present a comprehensive cradle-to-grave examination of representative cotton products, specifically knit golf shirts and woven pants, and includes garment creation, consumer product use and maintenance, transportation and product end-of-life. Available at www.cottonleads.org, the LCA is another way that the Cotton LEADS™ program is leading the way in sustainable cotton supply chains.

PARTNERS FOR *CHANGE* & *IMPROVEMENT*

Research and development into more responsible farming practices is ongoing. Over the coming decades, cotton will continue to play an important role in serving the world's growing population, through responsible production.

Retailers, brands, and manufacturers can get involved in the Cotton LEADS™ program by supporting research at the field level, disseminating best practices, and creating partnerships for continuous improvement in cotton production around the globe.



MOVING FORWARD WITH THE COTTON **LEADS**[™] PROGRAM

Integrate the Cotton LEADS[™]
program into your cotton
supply chain.

By specifying the Cotton LEADS[™] program as one of your preferred cottons, you can have confidence that your cotton is responsibly produced. Your organization will get full recognition for your support of these practices.



COTTONLEADS.org



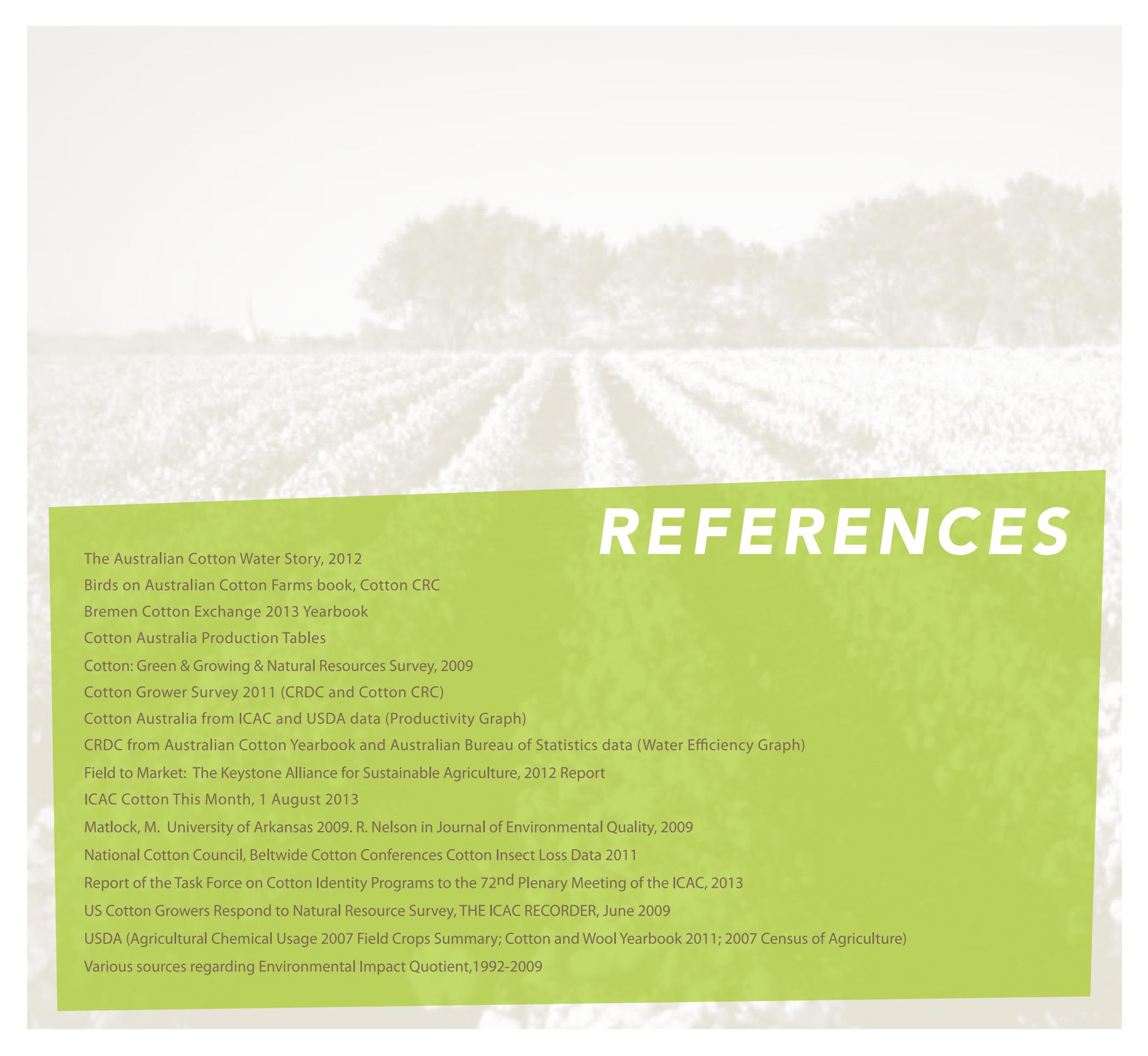
The Cotton LEADS™ program is a program founded by an alliance of industry organizations in Australia and the United States of America. The program is based on a commitment to core principles and national-level capabilities to effect change and continual improvement.

A committee, consisting of three members from Australia, three members from the United States, and two members from partnering industry organizations, oversees the activities and use of funds for the Cotton LEADS™ program. For more information or to contact the Cotton LEADS™ program, please visit www.cottonleads.org.



Cotton
Incorporated





REFERENCES

The Australian Cotton Water Story, 2012

Birds on Australian Cotton Farms book, Cotton CRC

Bremen Cotton Exchange 2013 Yearbook

Cotton Australia Production Tables

Cotton: Green & Growing & Natural Resources Survey, 2009

Cotton Grower Survey 2011 (CRDC and Cotton CRC)

Cotton Australia from ICAC and USDA data (Productivity Graph)

CRDC from Australian Cotton Yearbook and Australian Bureau of Statistics data (Water Efficiency Graph)

Field to Market: The Keystone Alliance for Sustainable Agriculture, 2012 Report

ICAC Cotton This Month, 1 August 2013

Matlock, M. University of Arkansas 2009. R. Nelson in Journal of Environmental Quality, 2009

National Cotton Council, Beltwide Cotton Conferences Cotton Insect Loss Data 2011

Report of the Task Force on Cotton Identity Programs to the 72nd Plenary Meeting of the ICAC, 2013

US Cotton Growers Respond to Natural Resource Survey, THE ICAC RECORDER, June 2009

USDA (Agricultural Chemical Usage 2007 Field Crops Summary; Cotton and Wool Yearbook 2011; 2007 Census of Agriculture)

Various sources regarding Environmental Impact Quotient, 1992-2009

