

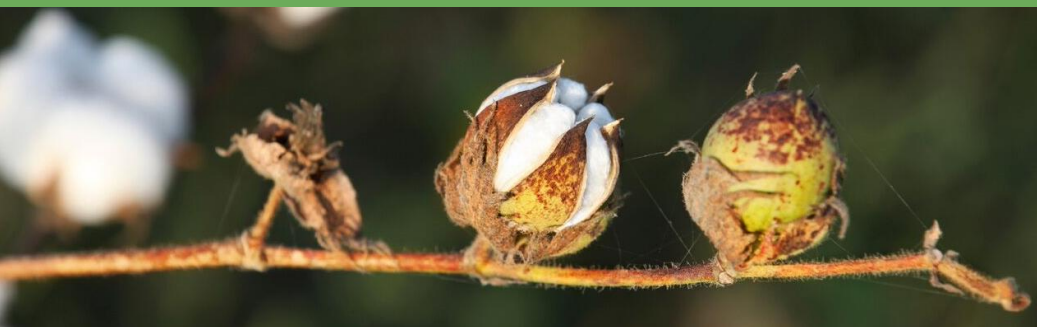


COTTON  CULTIVATED

COTTON AG DATA, RESOURCES AND TRENDS

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Quantifying Cotton's Environmental Impact

Ed Barnes, Agricultural & Environmental Research

ICAC - April 18, 2017



Cotton
Incorporated

Overview

- Sustainability Organizations
- Natural Resource Survey
- Global Life Cycle Assessment



Sustainability Organizations



Field to Market



Cotton LEADS™



Better Cotton Initiative



The Sustainability Consortium



Sustainable Apparel Coalition



Field to Market® Members



The Fieldprint[®] Calculator

Measuring Field Level Outcomes and Identifying Opportunities for Improvement



Cotton's Field National Fieldprint

2016 Field to Market Indicators Report

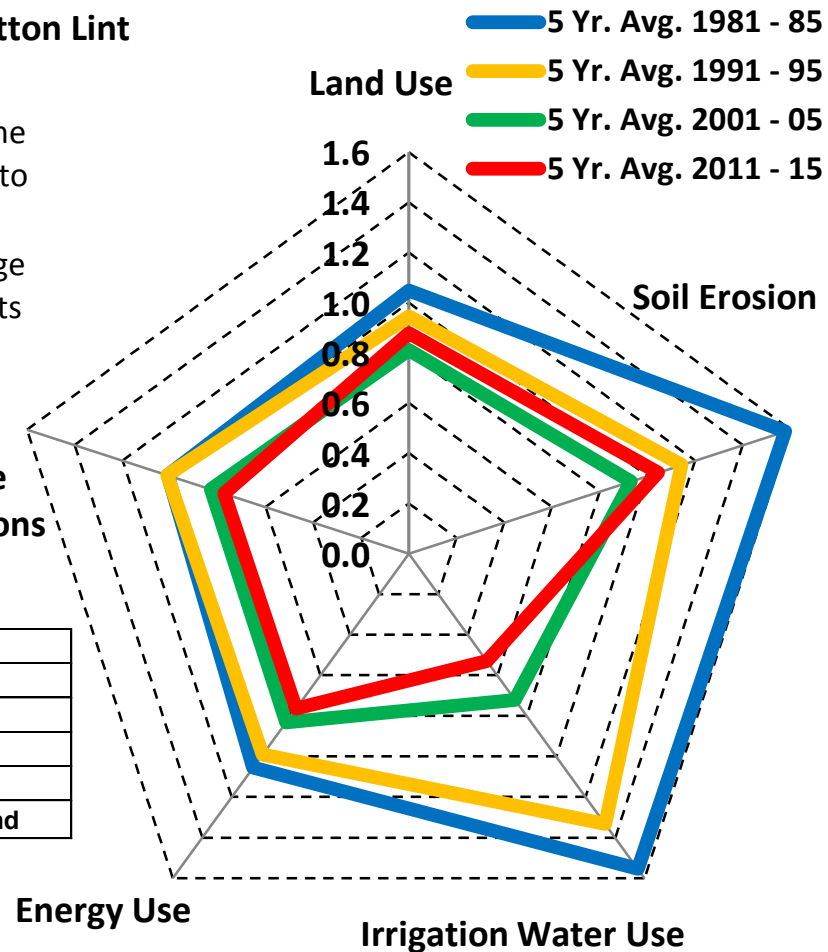
Index of Resource Impacts to Produce Cotton Lint (United States, Year 2000 = 1)

- Data are presented in index form, where the year 2000 = 1 and a 0.1 point change is equal to a 10% difference.
- Index values allow for comparison of change across multiple dimensions with differing units of measure.
- Year 2000 values are provided in the table below for reference.

Year	2000 *	Units
Land Use	0.001	Acres per pound
Soil Erosion	13.1	Tons per acre
Irrigation Water Applied	0.046	Acre-In per pound
Energy	8,965	BTU per pound
Greenhouse Gases	2.3	lbs CO ₂ e per pound

* Five-year average 1996 - 2000

Greenhouse
Gas Emissions





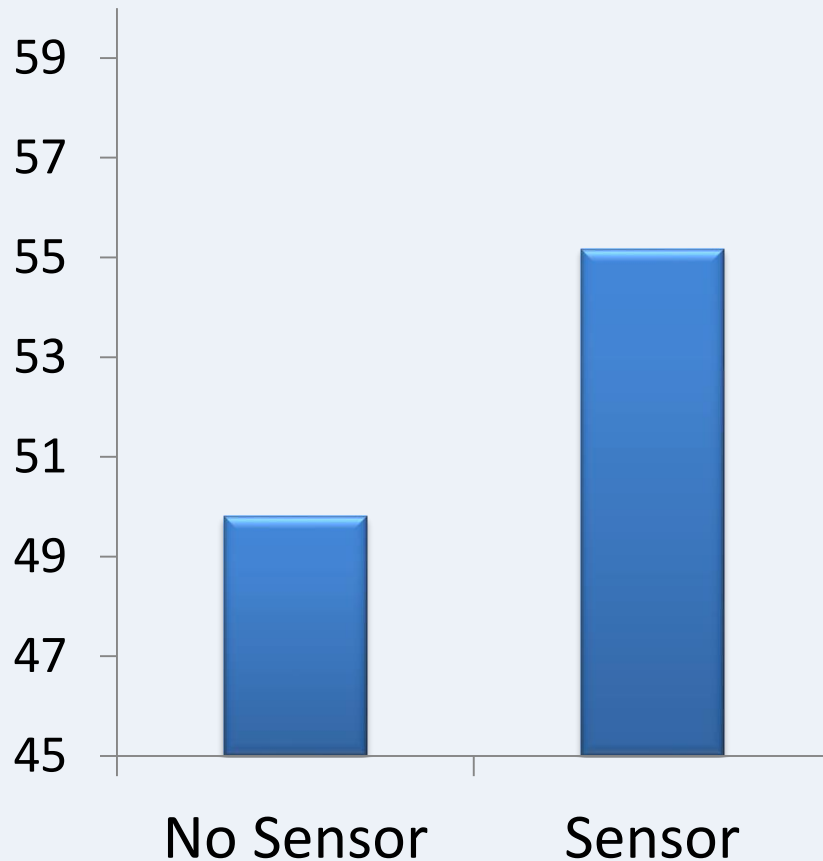
Natural Resource Survey

925 Cotton Grower Responses

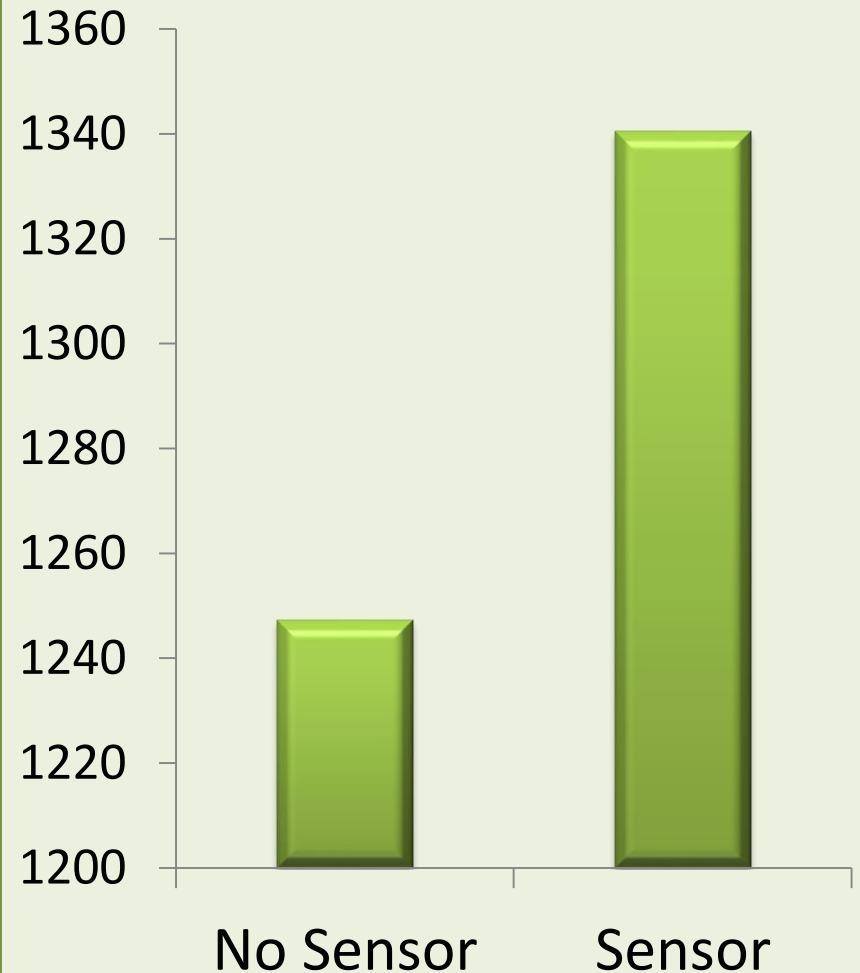
Conclusion: The technologies adopted by U.S. growers are contributing to continuous improvement by *increasing productivity* (yields) and *reducing environmental impacts* due to increased resource use efficiency.

Sensor-Based Irrigation

Irrigation Water Use Efficiency



Yield (lb per acre)



Global Cotton Life Cycle Assessment (LCA)



Cotton LCA Phases

Agricultural Production



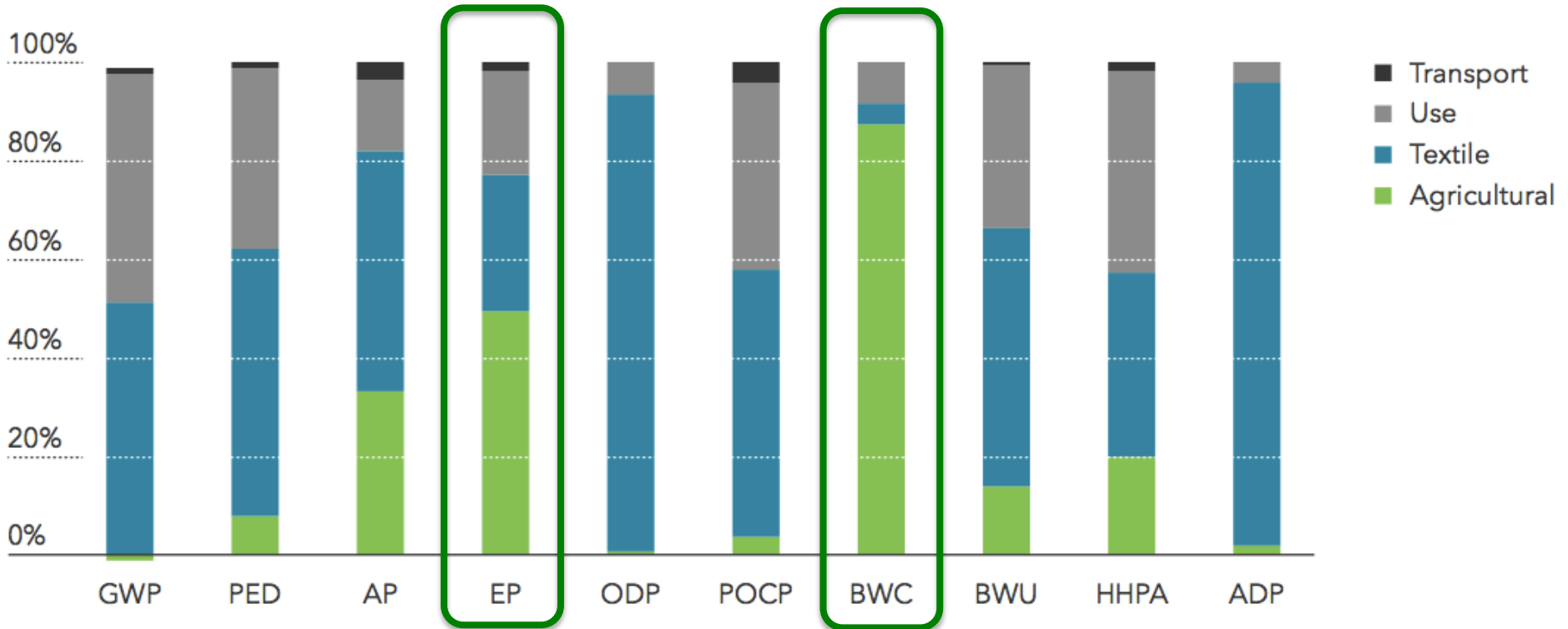
Textile Manufacturing



Consumer Use and Disposal

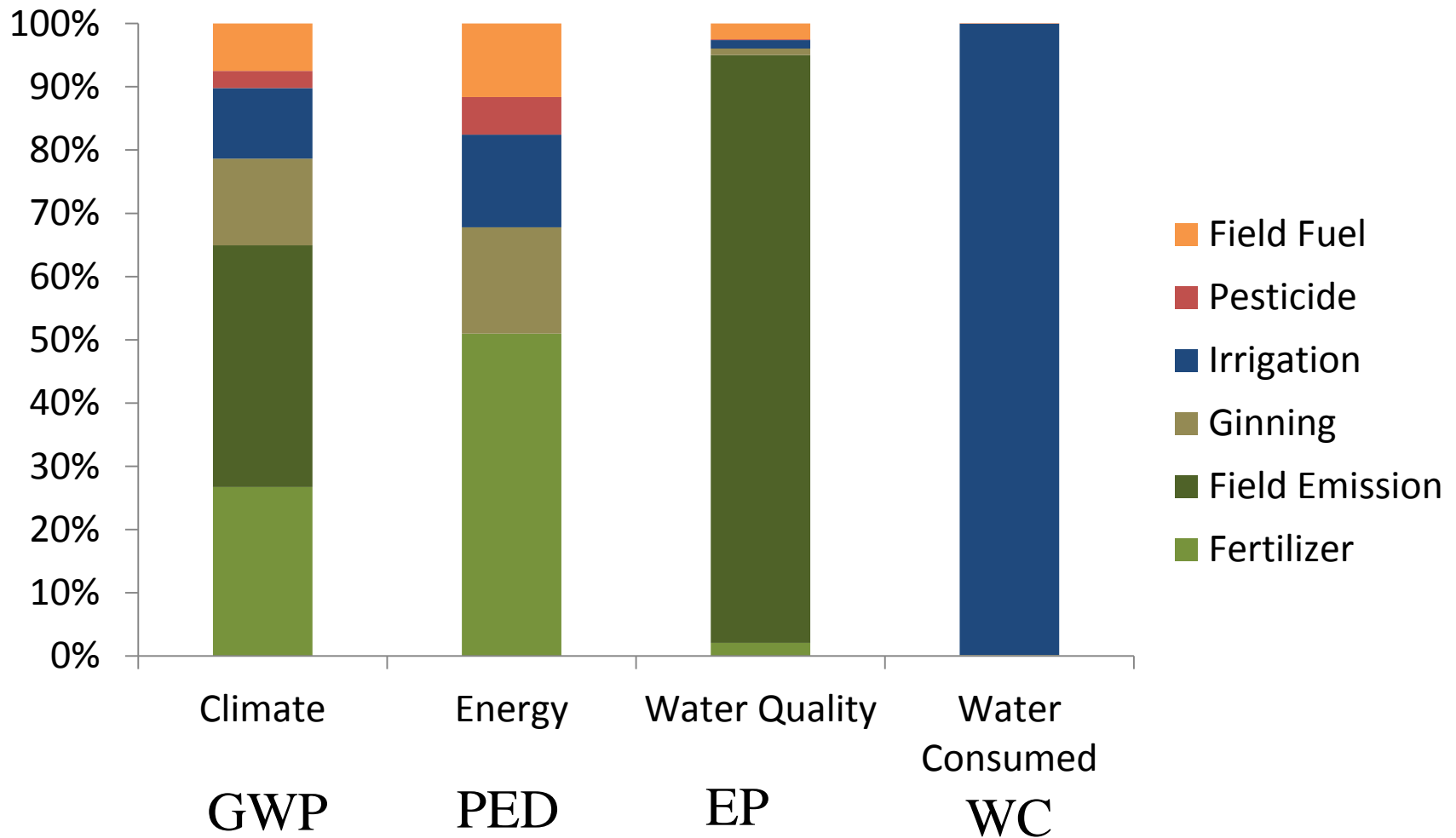


Overview of Results



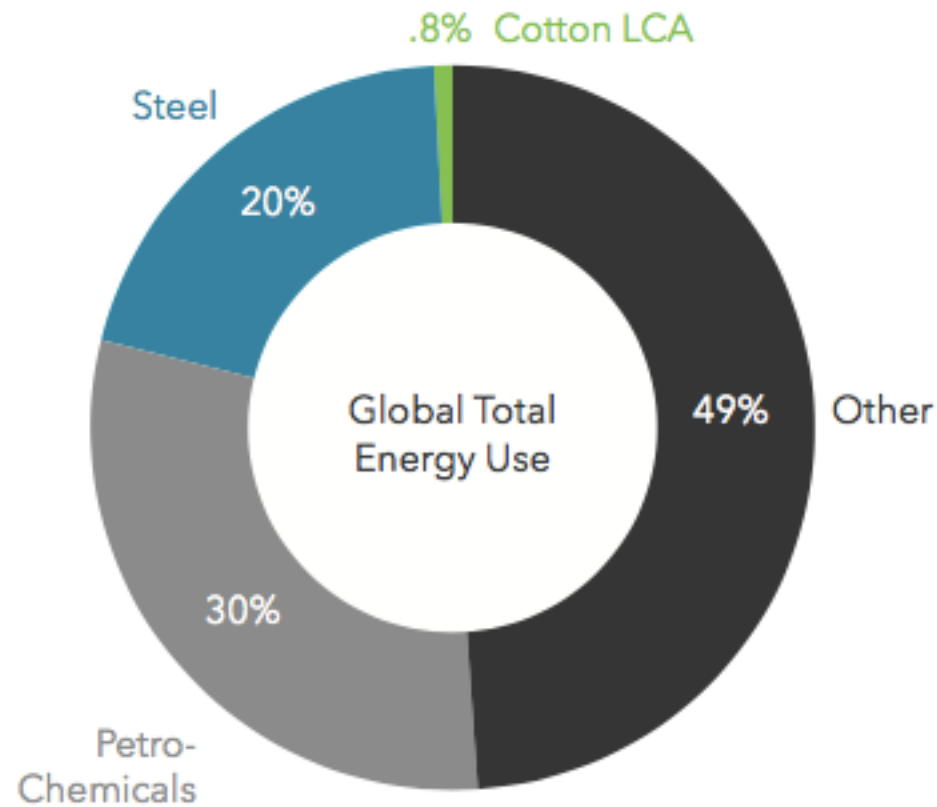
8 of 10 impacts dominated by Textile phase (blue)

Agricultural Impact Details



LCA Results in Context

- If all of the cotton in the world were manufactured into a knit shirt and laundered 20 times, the energy and green house gas emissions are less than 1% humanities' annual impacts.
- While meeting more than half world's apparel & home textile needs.



<http://cottontoday.cottoninc.com/> Reference Material

VIDEOS



Cotton and the Planet



Cotton and the "New Green Revolution"



Forty Years of Progress

COLLATERAL

THE IMPACT OF GROWING COTTON TO THE GARMENT LIFE CYCLE



The Cotton Life Cycle Environmental Footprint

The Impact of Growing Cotton to the Garment Life Cycle. PDF



A World of Ideas

A World of Ideas: Technologies for Sustainable Cotton Manufacturing is a guide from Cotton Incorporated that

presents 26 technologies or processes that enable substantial reductions in the use of water, energy and chemicals (WEC) in cotton textile processing. PDF



The Life Cycle Inventory and Life Cycle Assessment of Cotton Fiber &

PHOTOS



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Thanks!



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