



# Global Adoption and Impacts of Biotech Cotton

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**ORIGIN AFRICA Cotton Seminar:**  
**Improving Productivity & Value Addition in Africa**

*10 - 12 November 2014, Intercontinental Hotel, Nairobi, Kenya*

# Overview of Presentation

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- **Global Adoption – 1996 to 2013 (18 years)**
- **Africa Outlook and Trends**
- **Impact (1996 to 2012)**
- **Future Prospects**

# ISAAA – [www.isaaa.org](http://www.isaaa.org)

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## ISAAA is a Pro-Choice Organization

- Shares knowledge freely on crop biotechnology whilst respecting the rights of others to make their own decisions; ensure that the global society is well informed about the attributes and potentials of the new crop biotech applications
- **MISSION** – Contribute to poverty alleviation by increasing crop productivity and income generation, particularly for small resource-poor farmers and to ensure a safer and more sustainable environment

# Biotech Cotton – 2013

**Global Adoption 70%**



## Overview Planting 15 Countries

**Top 4 > 1 Million hectares**

**India = 11 M ha (95% adoption)**

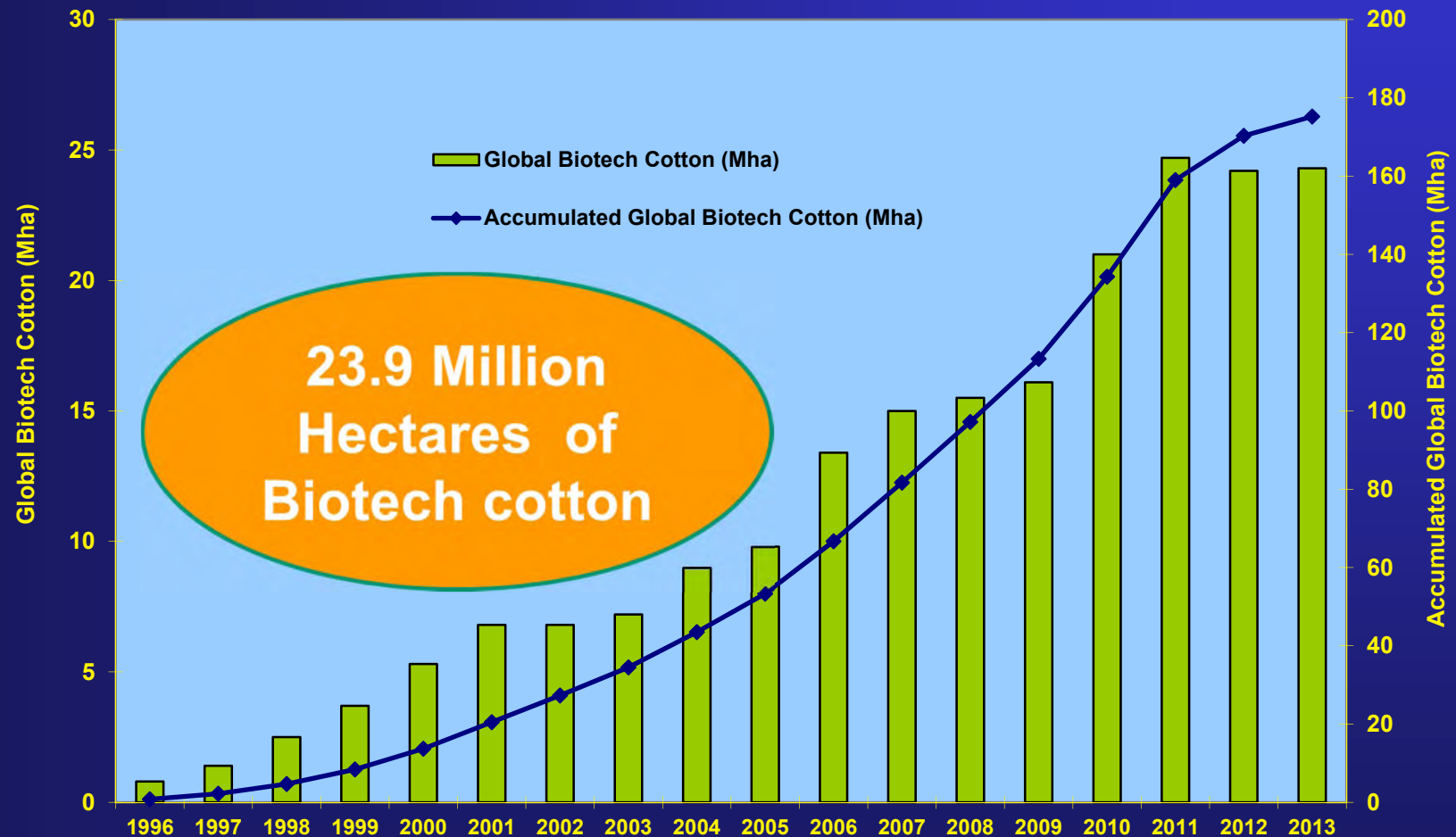
**China = 4.2 M ha**

**USA = 3.7 M ha**

**Pakistan = 2.8 M ha**

**NB: 3 African Countries  
~543,759**

# Global Adoption of Biotech Cotton in Hectares and Accumulated Hectares, 1996 to 2013



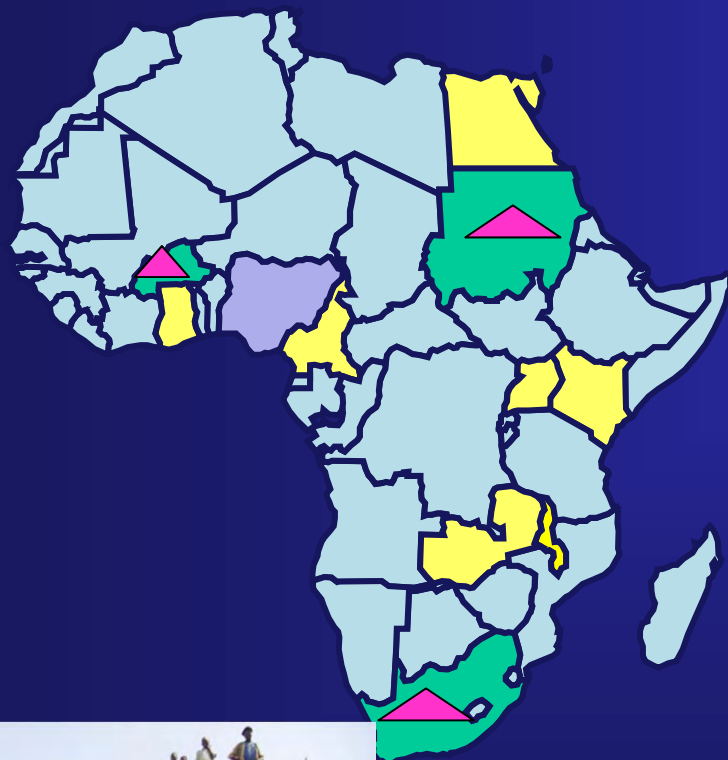
Source: Clive James, 2013

# Countries Growing Biotech Cotton - 2013



	Country	Hectarage (M/Ha)	% Biotech cotton
1.	India	11	95%
2.	China	4.2	90%
3.	USA	3.7	90%
4.	Pakistan	2.8	86%
5.	Australia	416,000h	99%
6.	Argentina	500,000h	100%
7.	Brazil	500,000h	47%
8.	Paraguay	50,000h	50%
9.	Burkina Faso	474,229	68.6%
10.	Colombia	24,000h	99%
11.	Costa Rica	235h	100%
12.	Myanmar	305,000h	85%
13.	Mexico	102,000h	90%
14.	South Africa	8,000h	100%
15.	Sudan	61,530h	89%

# 2013 Africa Biotech Cotton planting and CFTs



## Biotech Cotton commercial

South Africa  
Burkina Faso  
Sudan

## In the pipeline (CFTs)

Cameroon  
Egypt  
Ghana  
Kenya  
Malawi  
Uganda

# Case Study: *Bt cotton in Burkina Faso*



Principal cash crop - generates 300 million US\$ per yr  
**=60% of export earnings!**

Total hectarage of Bt cotton in 2013: **474,229 ha**  
against 313,781 ha in 2012 (**50% increase**)

## Benefits

1. Average yield increase: 20%

2. Labour and insecticide savings: from 6 to 2 sprays=> Health benefits by reducing exposure for humans and environment

3. Time saved used to cultivate food crops

4. Water saved: 76,320 million litres. (INERA ,Dec.2012)



# IMPACT OF BIOTECH COTTON



Cumulative income benefits 1996 – 2012  
**USD 37.4 Billion**

**2012 = USD 5.4 Billion**

Burkina Faso earned  
**USD ~90 Million**

India achieved 550kg lint per hectare;  
**USD ~2.1 Billion**

## Bt cotton attracting youngsters to farming: Survey

■ Business Bureau

CONTRARY to the perception that youngsters are abandoning farming, Bt cotton technology has attracted young farmers to cotton farming in the country, a survey by Indian Society for Cotton Improvement (ISCI) said.

The survey confirmed wide-spread planting of Bt cotton, occupying 95 per cent of total cotton area, in the rainfed, semi-irrigated and irrigated areas, which has taken place during the last 8-9 years in Maharashtra and Andhra Pradesh and 6-7 years in Punjab, ISCI said in a release.

"Bt cotton technology attracted young farmers to cotton farming, with more than 50 per cent of the surveyed farmers coming from the lower middle age group in Maharashtra, Andhra Pradesh and Punjab," the report said.

The report covered 2,400 small holder farmers across the three agro-ecologically distinct cotton growing states of Maharashtra, Andhra



of Bt cotton is due to substantial and significant benefits to farmers, successful control of dreaded bollworm pests, benefits to industry."

The benefits from BT cotton have also come to the nation from enhanced exports and coincidental protection of environment through substantial reductions in pesticide use, he added.

Bt cotton farmers reported an average profit of Rs 41,837 per hectare, above the national level. The highest profit was in the Punjab at Rs 52,000 per hectare followed by Andhra Pradesh and Maharashtra at Rs 41,837 per hectare in Maharashtra, the report said.

In the States surveyed a substantial decrease of 82.8 per cent in insecticide sprays was realised, while achieving 99.3 per cent control of the American bollworm pest, it added. Farmers in Maharashtra reported 78 per cent reduction in insecticide sprays, 82 per cent in Andhra Pradesh and 98 per cent in Punjab, the report said.

**INDIA**

Pradesh and Punjab.

"More than 50 per cent of respondent Bt cotton farmers were from the lower middle age group ranging from 21 to 40 years with a mean average age of 42 years for all respondents in the three surveyed states," it added ISCI's survey report

— The report also noted that the Bt Cotton in India — was released today by Agriculture Minister Sharad Pawar during seed company Mahyco's golden jubilee celebrations in Jalna (Maharashtra).

Releasing the report, Pawar said, "The unprecedented high adoption

# Relevance & need of biotech cotton particularly for small farmers



- Biotech cotton (Bt/Ht) is neither a growth promoter nor a magic bullet: Good Agronomic practices and stewardship key!
- Right combination of biotech trait(s) and genotype(s) is essential for success
- Investment returns on biotech cotton largely depend on the degree of insect-pest infestation & weed prevalence
- Timely availability of quality and purity of biotech cotton seeds (varietal/hybrid) is a must to optimize the efficacy of biotech trait(s) and productivity of genotypes

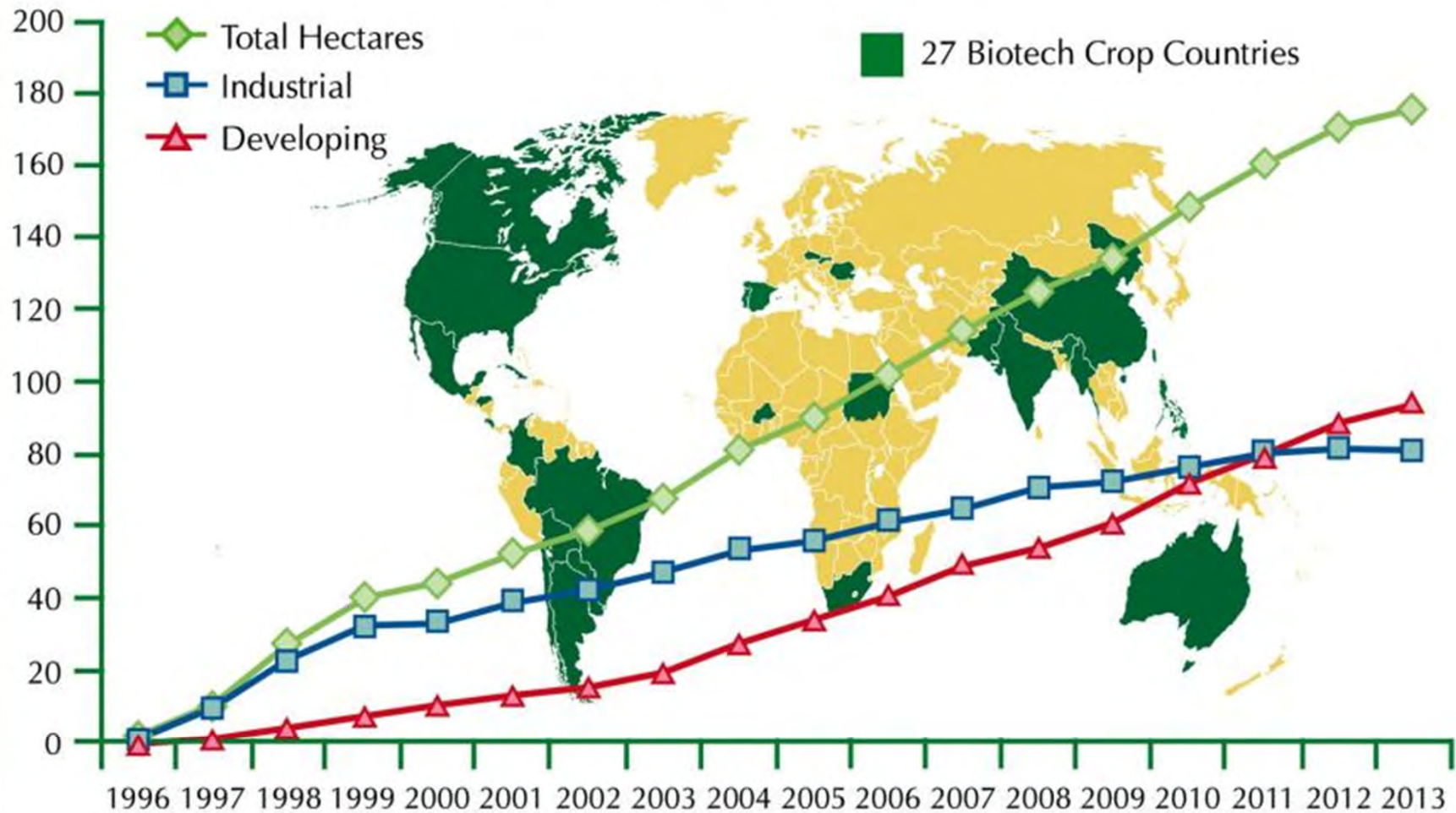
# Four requirements for growth of Biotech cotton in Africa



1. Political will and support from lead countries, governments and institutions
2. Efficient, science-based and predictable regulatory regimes
3. Focus on Value-chain approach
4. Communication with Society transparently and accurately

*“What we need is courage by the leaders of those countries where farmers still have no choice but to use older and less effective methods..Borlaug*

## GLOBAL AREA OF BIOTECH CROPS Million Hectares (1996-2013)



*A record 18 million farmers, in 27 countries, planted 175.2 million hectares (433 million acres) in 2013, a sustained increase of 3% or 5 million hectares (12 million acres) over 2012.*

Source: Clive James, 2013.

**The Clive Curve**