



# GM Cotton in Colombia: success and challenges

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INTERNATIONAL FOOD  
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# Outline

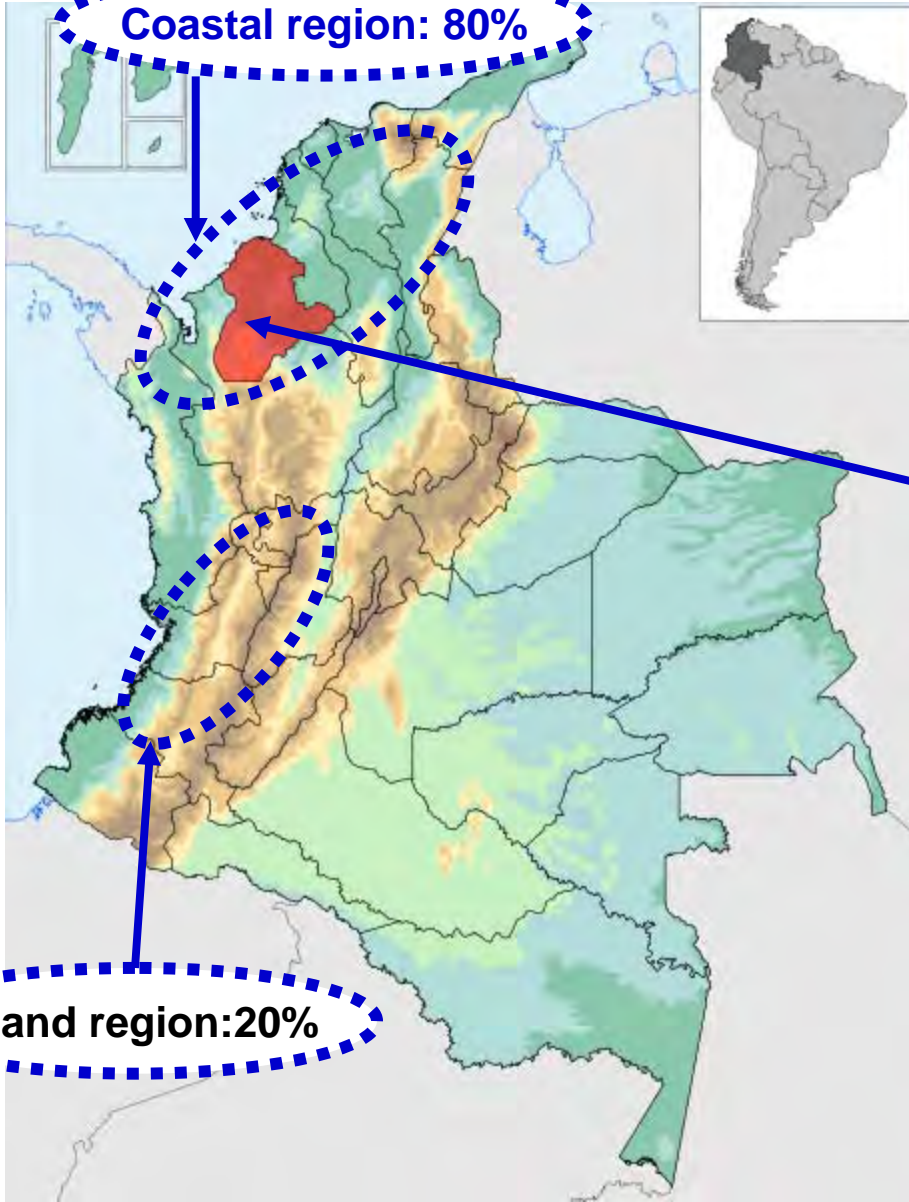
- Overview cotton industry in Colombia
- GM cotton seeds in Colombia
  - ✓ Success of first seed introduced
  - ✓ Problems with later seeds
  - ✓ Overall balance, moving forward
- Research projects
  - ✓ IFPRI- Conalgodon study 2007- findings
  - ✓ Gender study - issues identified

# Overview cotton industry in Colombia

South  
America



Coastal region: 80%



## Colombia:

Has two different cotton seasons in two regions with very different agroecological characteristics:  
Coastal (80% area) and interior (20%)

## Córdoba: Main department of the coastal cotton area

Avg Temp 28°C.

Rel. Humidity 85%

Annual Precipitation:  
between 1.000 & 4.000 mm

Inland region: 20%

# Main cotton figures 2005 - 2010

Area	50,763 Ha
No. Farmers	6,028
Female farmers, No. (%)	1,227 (20)
Farm size(average)	8.5 Ha
Farm size, male	4.7 Ha
Farm size, female	3.7 Ha
Tenure:	67.9% Rent
	31.9% Own
Yield , seed cotton	2,130 Kg/ha

**Cotton is a crop of political interest due to its labor intensiveness and its importance as a cash crop**

# When GMO arrived in Colombia

- **Few conventional seed varieties in the market**
  - Imported germplasm DP&L (2 varieties) 90%
  - National varieties SEMSA (5 varieties) 10%
- **R&D limited technical capacity as well as financial resources. A levy imposed on producers is the main source of these resources.**

# Chronology of commercial release of cotton transgenic seeds

## Monsanto varieties & technologies

## Monsanto and Bayer varieties

## Monsanto technology

NUOPAL

NUOPAL R  
Delta Opal R  
DP 455 B1R  
DP 555

NUOPAL R  
Delta Opal R  
DP 455 B1R  
DP 164 B2RF

NUOPAL R  
Delta Opal R  
DP 455 B1R  
DP 164 B2RF  
FM B2RF: 9180; 9162;  
9171; 9063

**Bt**  
**Cry 1A c**

**B1R**  
**Cry 1Ac +**  
**CP4EPSPS**

**B2RF**  
**Cry1A c +**  
**Cry2A b +**  
**CP4EPSPS**

**B2RF**  
**Cry1A c +**  
**Cry2A b +**  
**CP4EPSPS**

2004

2007

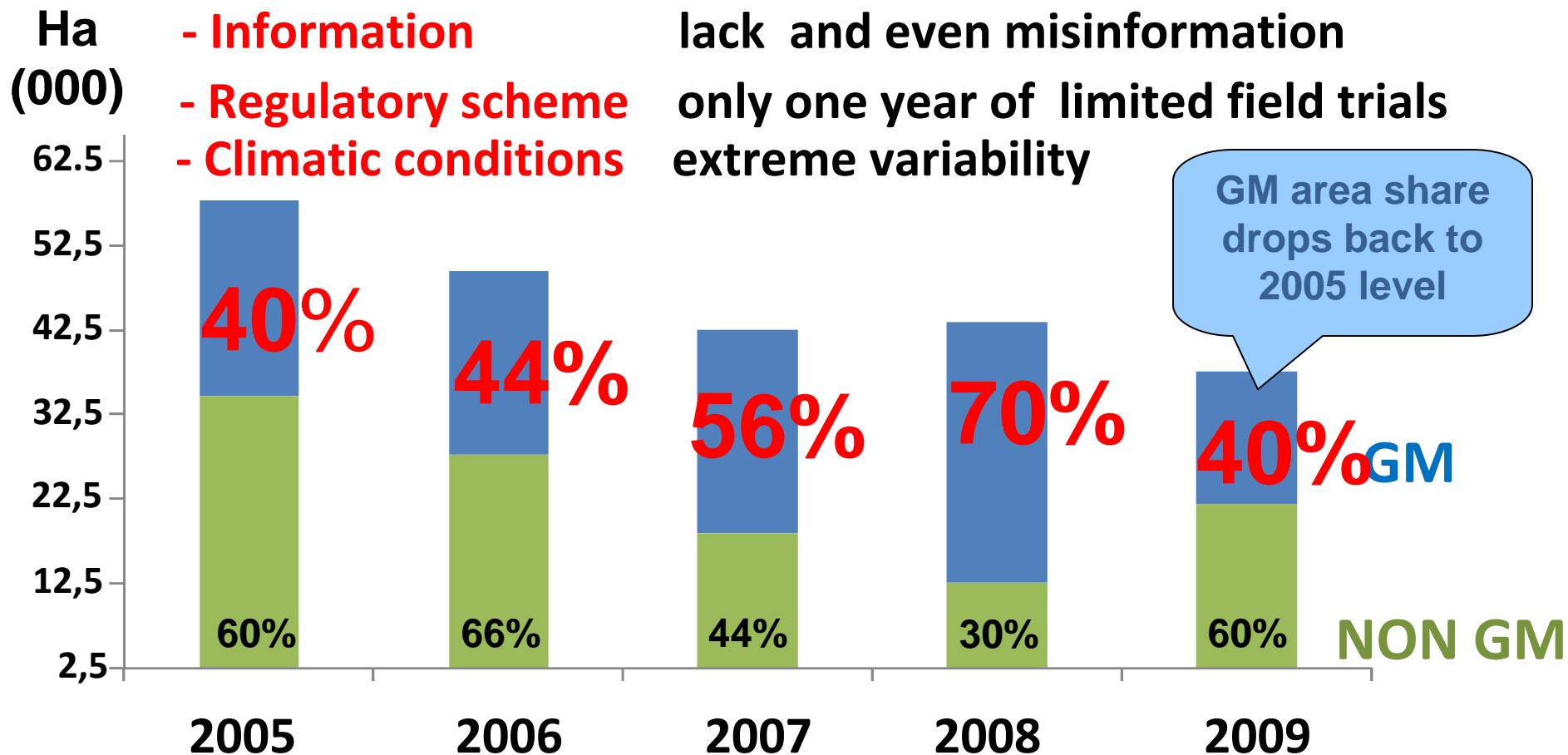
2008/2009

2010

**GM adoption began with NUOPAL , which has been the best adapted germplasm in Colombia. Use of HT varieties in 2007/08 left many farmers with considerable losses.**

**Possible explanations:**

- **Germplasm** not locally adapted
- **Information** lack and even misinformation
- **Regulatory scheme** only one year of limited field trials
- **Climatic conditions** extreme variability

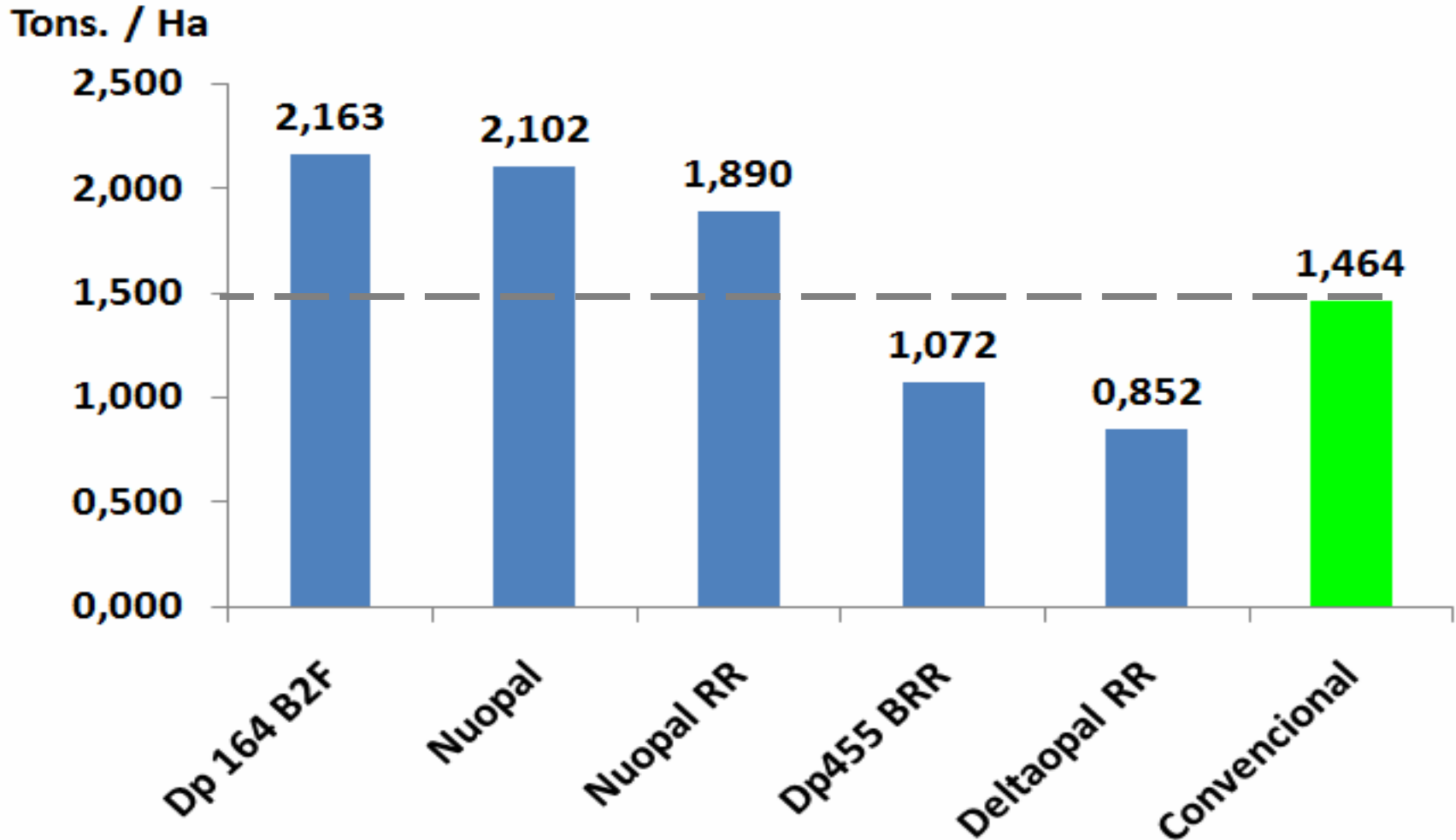


# FACTS

- **GM seeds cost three times more than conventional seeds**
- **The number of insecticides applications has not fallen as the most important pest is not the Bt targeted pest but continues to be Boll weevil**
- **Benefits in yield gains are differential, and sometimes do not cover the additional seed cost**
- **Farmers are paying to cover potential risks**

# GM and Conventional Seed Yield

## Costal Region – Cordoba 2009



- **Problems with later varieties introduced**
  - ✓ **Monsanto representatives advertised inaccurate and incomplete information regarding the timely management of HT varieties and B2**
  - ✓ **HT varieties were tested only in one season and few locations in a country with very diverse agro ecologic cotton growing areas**
  - ✓ **Monsanto agreed to negotiate with CONALGODON regarding farmers losses during the first semester of 2009, but negotiations broke at very last minute.**

## Conalgodón pide sanciones

El gremio de los algodoneros, Conalgodón, oficializó la semana pasada la solicitud al ICA para que aplique sanciones a la multinacional Monsanto por supuesta publicidad engañosa, en el caso de la semilla transgénica que se sembró en la pasada cosecha en Sucre y que no arrojó los rendimientos anunciados por esa empresa. También se le acusa de omitir información sobre las dosis de aplicación de glifosato en los cultivos.

## La controversia

Una gran cantidad de agricultores que decidieron invertir en estas semillas cuyo costo fue tres y cuatro veces superior al de las semillas convencionales, sufrieron cuantiosas pérdidas y sobrecostos, pues durante el desarrollo de los cultivos las semillas no presentaron las publicitadas resistencias. Para ilustrar este daño, se estima que sólo en el departamento de Córdoba, los algodoneros sufrieron pérdidas en el 49 % del área sembrada con semillas transgénicas y esta pérdida puede evaluarse en el 13 % del valor de la producción cuyo monto se estima en \$20 mil millones.

## POLÉMICA POR SEMILLA TRANSGÉNICA

# Los algodoneros demandarán a Monsanto por semilla transgénica

Los productores de la Costa Caribe dicen que se perdió el 13 por ciento de la cosecha. La empresa dice que no incumplió el acuerdo que se había alcanzado tres semanas atrás.

## Lío entre algodoneros y Monsanto sigue caliente

Conalgodón oficializó el pedido al ICA para que imponga sanciones a Monsanto por el caso de la semilla transgénica sembrada en la Costa Caribe.

## Días negros del «oro blanco»

# Overall Balance

- Economic impact of transgenic seeds has been positive but questions arise regarding seed cost and regional adaptation
- Current biosafety regulations have improved and now technology owners are required to provide better information and training
- Imported varieties appeared to be more vulnerable to weather variability
- Need to enhance conventional seed availability

# Moving forward

- Maintain and improve access to transgenic technology with more than one player in the market
- Negotiate transgenic seed prices in accordance to benefits to farmers by variety and region
- Achieve Monsanto agreement to license their technology to introduce their genes into national varieties .