

*Sustainability:  
What does it mean for  
Agriculture?*

*Dialogue on Agriculture  
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# Overview

- **The right choice: produce more in a sustainable way**
- **Some technologies to help answering the challenge**
- **Including the developing countries: the example of**  
**« WEMA » project in Africa**



# It is an imperative to find and develop technologies to help answering the challenge of a Sustainable Agriculture





# A globally sustainable agriculture



Increase production to meet needs of a growing population.

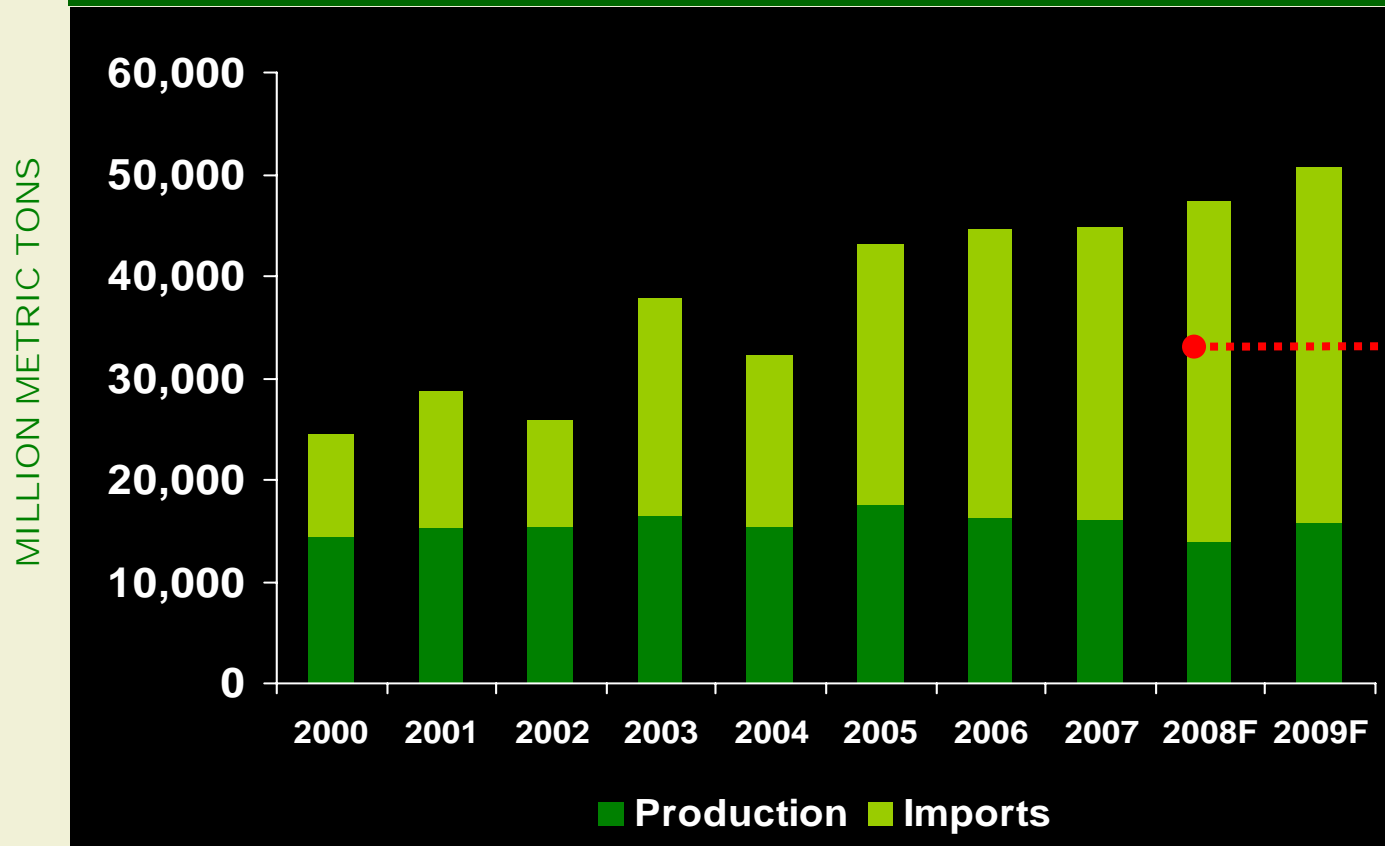


Double food production by 2050 to feed a world of 9 billion people



# A growing demand has started

CHINA'S GROWING SOYBEAN DEMAND:  
DOMESTIC PRODUCTION AND IMPORTS<sup>1</sup>



In 2008, forecasts are for China to import >33MMT of soybeans

1. ProExporter

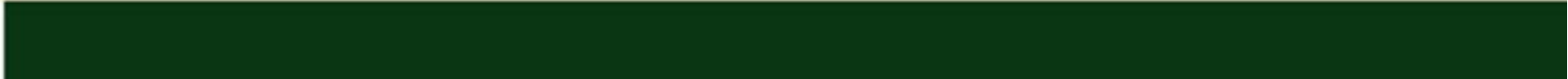


# A globally sustainable agriculture

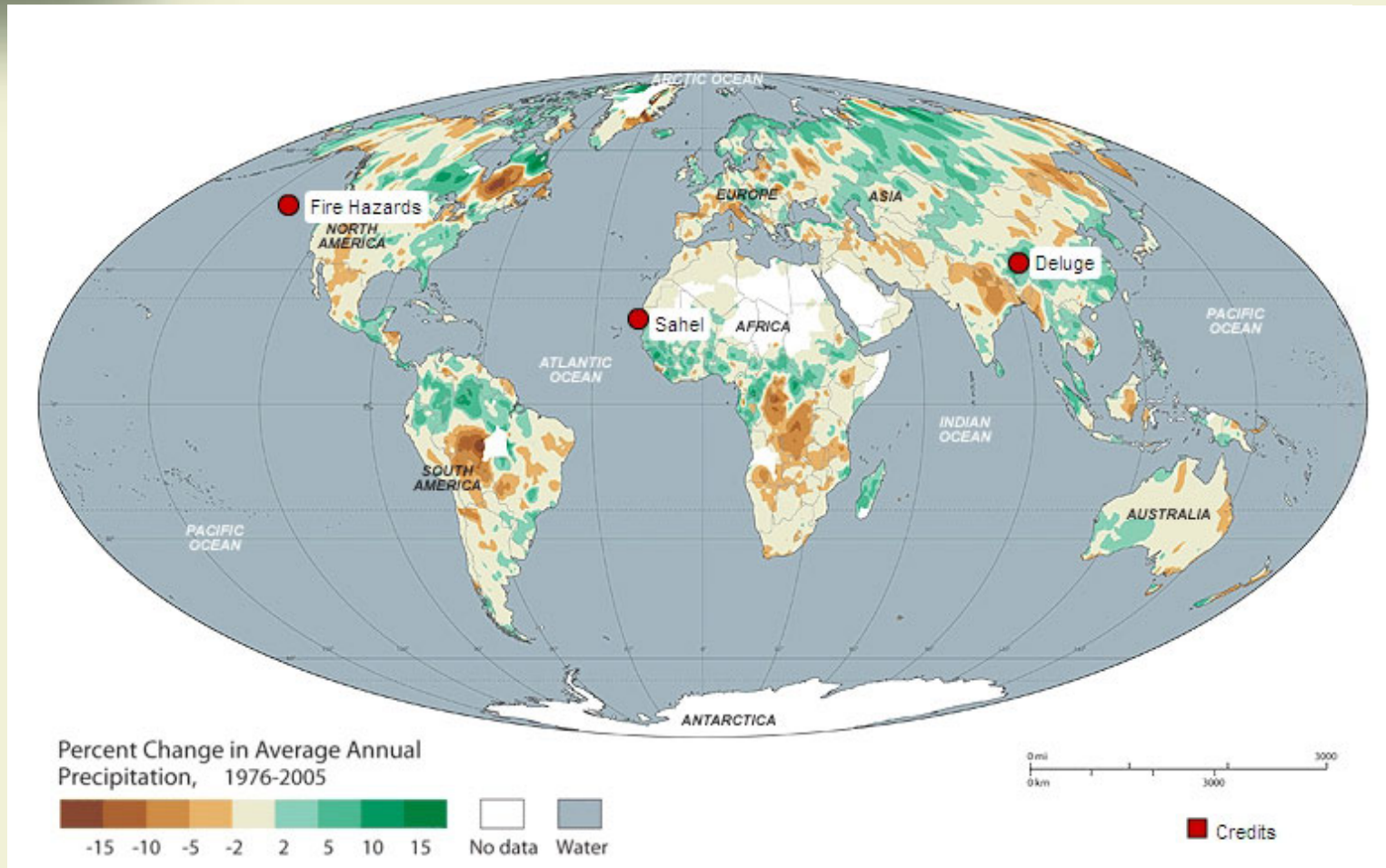
Produce with more  
judicious use  
of limited natural  
resources.



Conserve water, land and energy



# Change in global precipitation



Source: National Geographic Oct. 2007



# Water Usage and Agriculture

## The Challenge

- Agriculture is responsible for 70% of freshwater withdrawal.
- By 2025, Developing Countries will have ~ 300 Million MT grain deficits due to water scarcity.





# A globally sustainable agriculture

Help farmers  
become more  
environmentally  
and economically  
sustainable

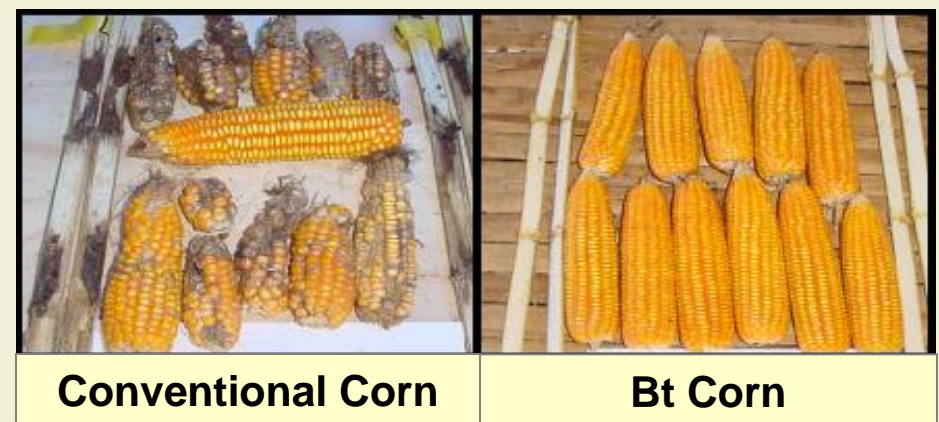
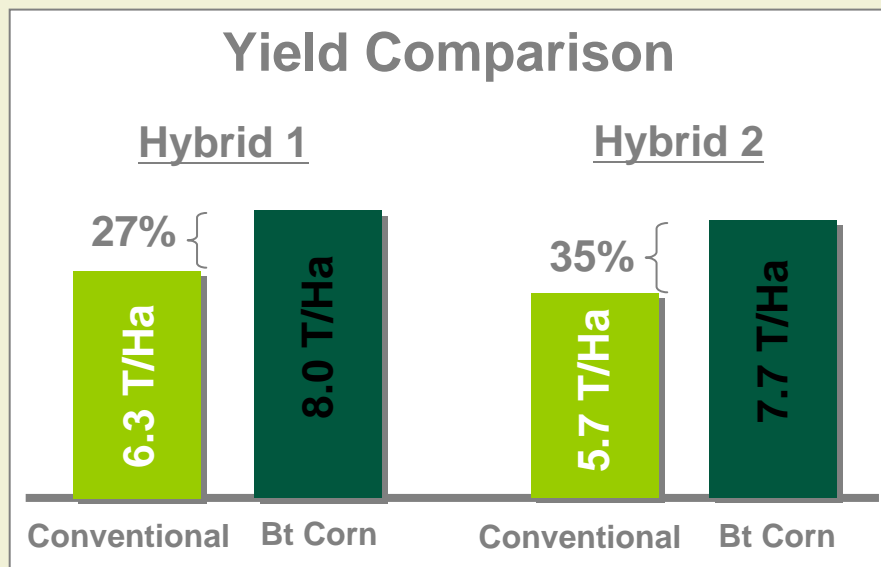


While  
improving  
the lives of  
the world's  
farmers.



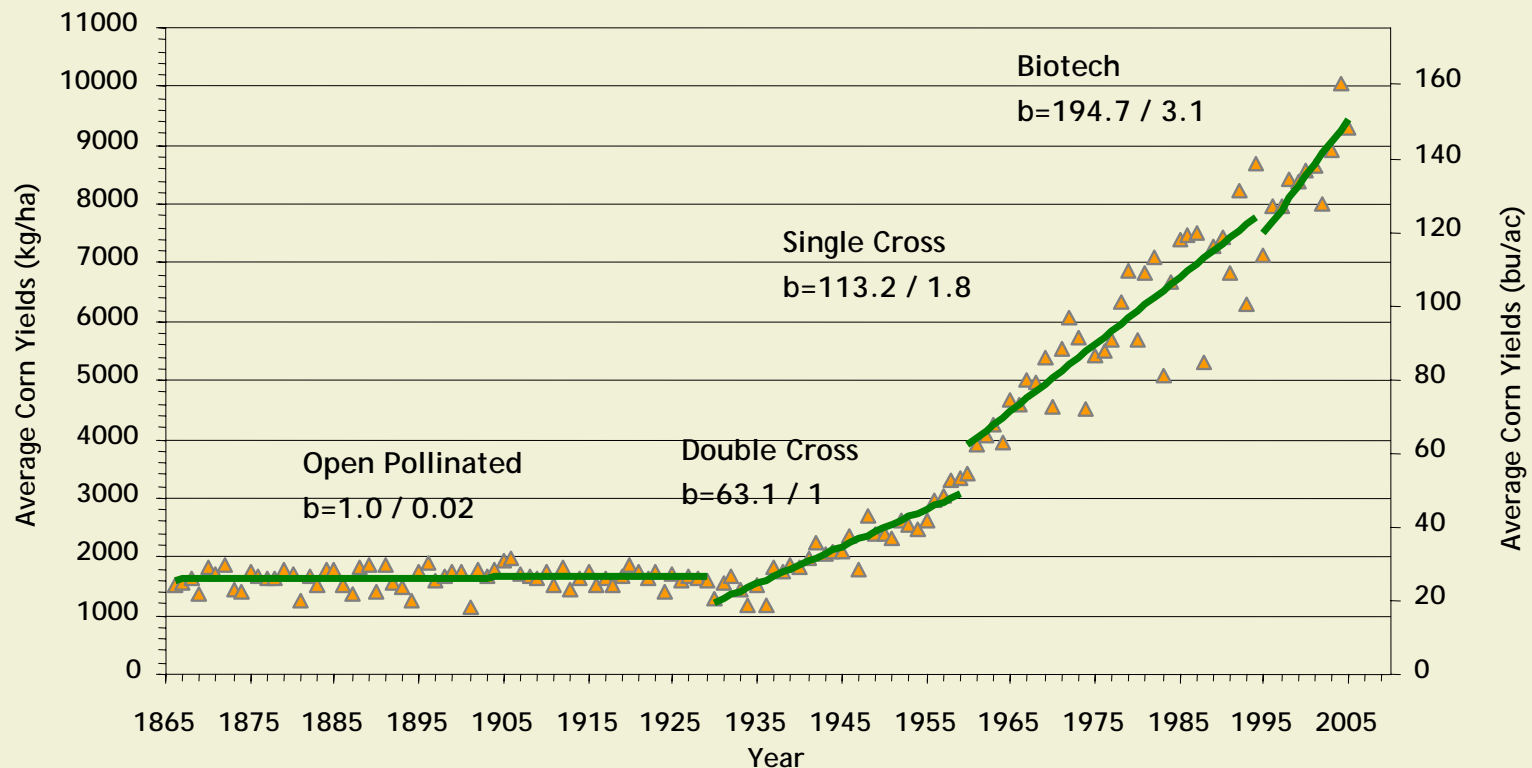
# Improved Livelihood for Farmers

- >15,000 farmers growing Bt maize in the Philippines
- Yield advantage: ~30%
- Production cost reduction ~20%
- Income increased by 20%



# Better seed delivers results while reducing the environmental footprint

- Actual Breeding Plus Cultural Practice Gain:
- Corn Yields Continue to Advance, Tremendous Gains Made Over Last Ten Years



Source: March 2006. Crop Science. Ref# 46:528-543



# Water use efficiency technologies under advanced development

FIELD TRIALS in the US - 2007



CONTROL HYBRID  
(76 BU/AC)

WITH GENE  
(94 BU/AC)

Source: Monsanto field trial research.

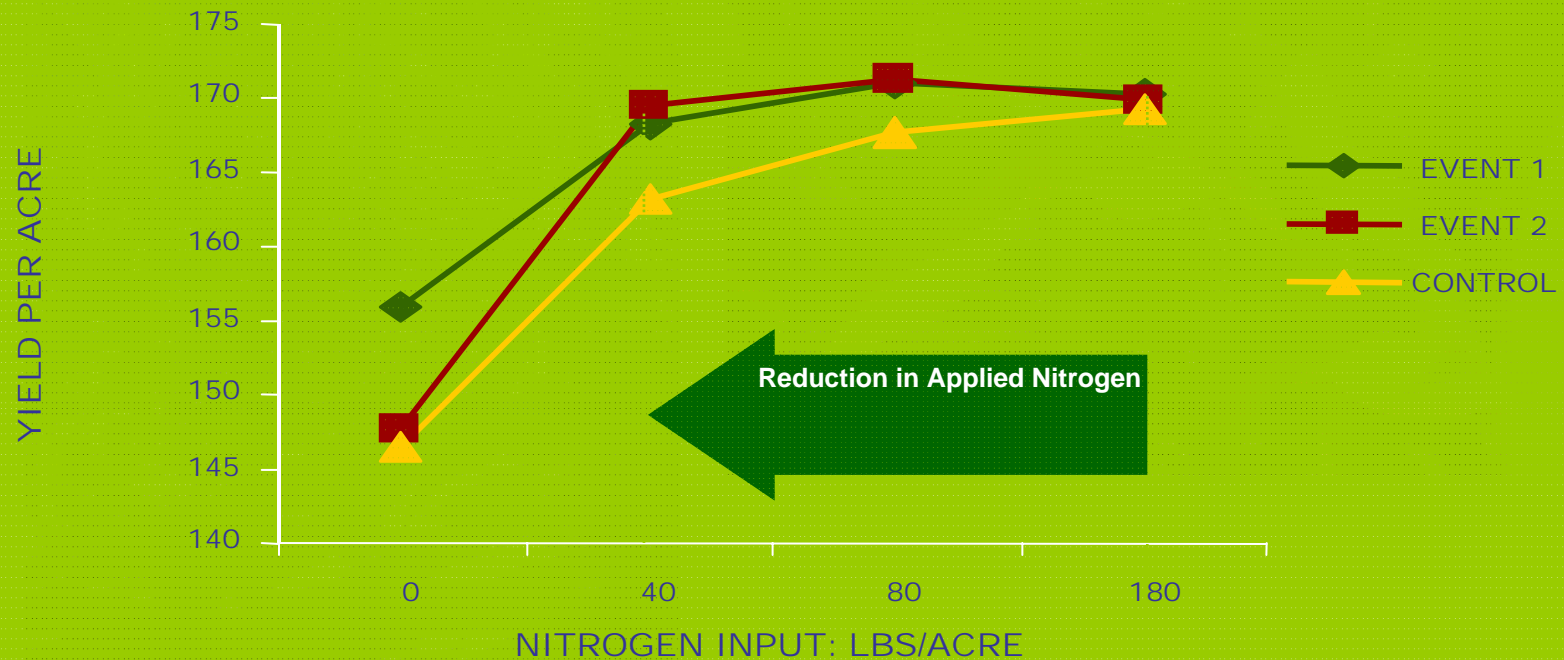


# Producing Higher Yields with Fewer Inputs Including Nitrogen

Corn

2006 FIELD RESULTS CONFIRM CONTINUED PERFORMANCE OF LEADS IDENTIFIED IN 2005

LEAD NITROGEN UTILIZATION GENE  
(ACROSS 3 LOCATIONS: ILLINOIS AND IOWA)



Source: Monsanto field trial research, 2006.



# Water Efficient Maize for Africa (WEMA)

**Goal: To increase yield stability and reduce risk under drought conditions**



- Increase yields 25% in ten years (MAB + biotech)
- Enable use of hybrids and fertilizer
- Enable crop diversification

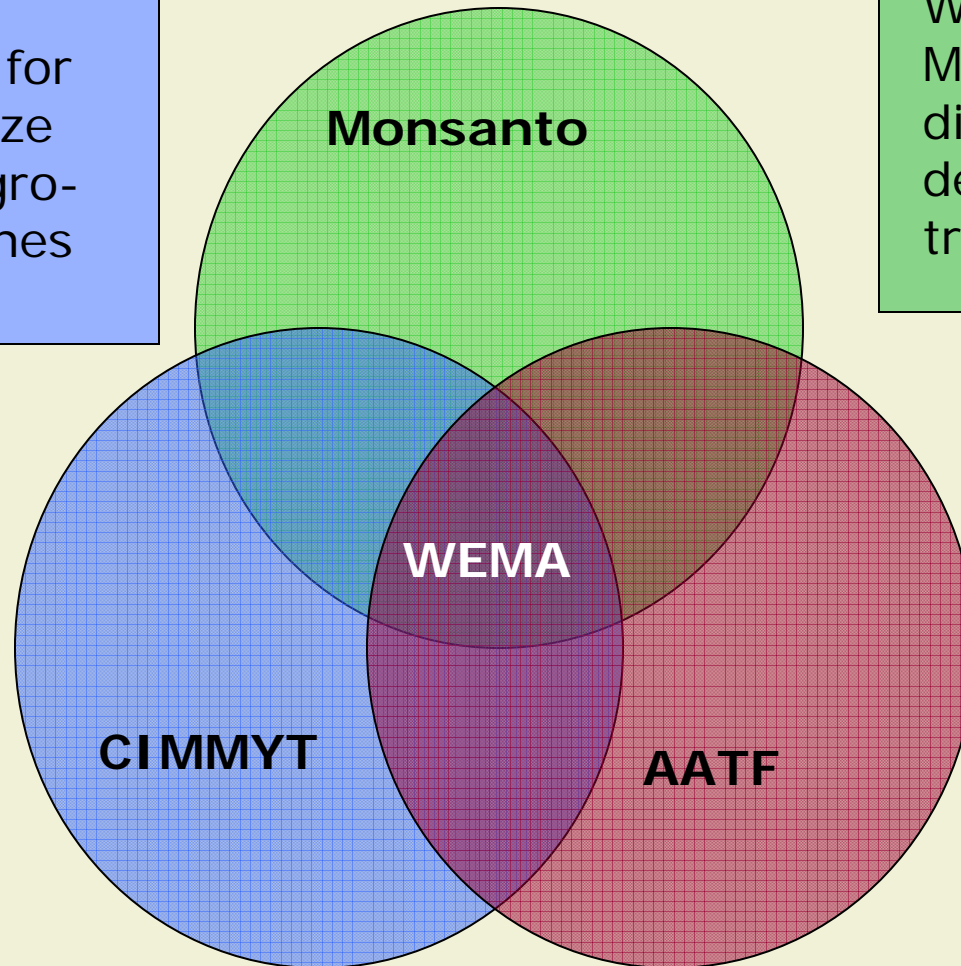


# WEMA Partners Working with the NARS (National Ag Research Services)

World leader for breeding maize for African agro-ecological zones

**Monsanto**

World leader in MAB, gene discovery, trait development and trait licensing



**CIMMYT**

**AATF**

Unique African institution mandated to access and deliver proprietary technologies to African farmers

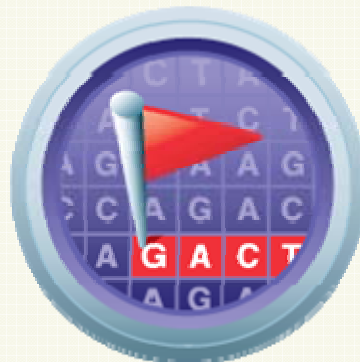
# Monsanto Contribution to Deliver WEMA

## GERMPLASM



Start with specifically chosen germplasm for Africa...

## ADVANCED BREEDING



...then using advanced breeding, selecting directly for beneficial drought tolerance characteristics in germplasm with genetic markers...

## BIOTECHNOLOGY

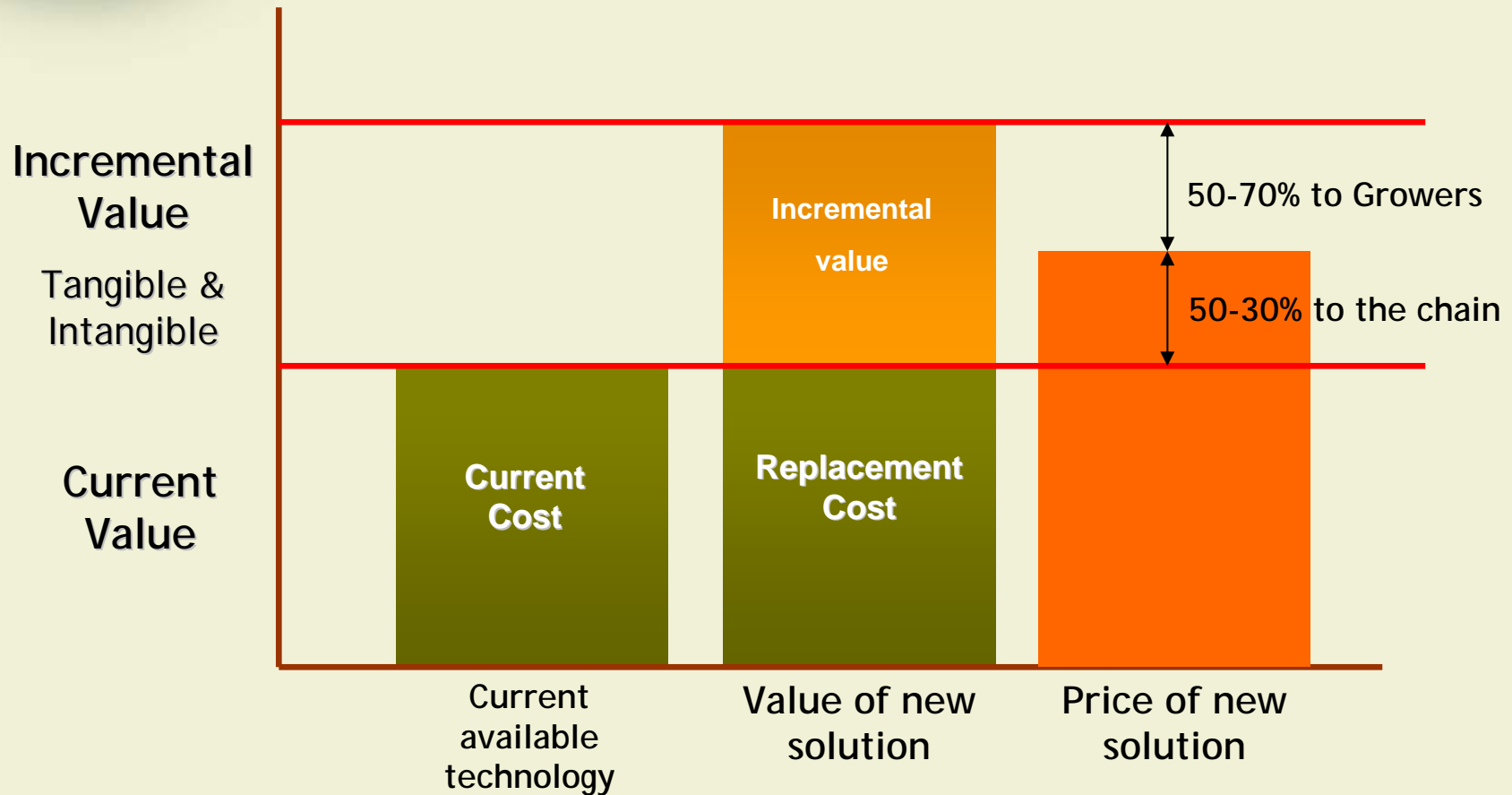


... then enhance improved germplasm with biotech.

ALL THREE WORK TOGETHER TO MAXIMIZE YIELD UNDER STRESS



# Value sharing is a critical element of technology adoption in each world area





Thank You

