

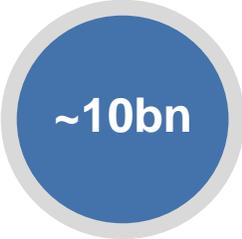


# **Sustainable Agricultural Solutions**

## **Challenges and Opportunities for the Indian Agricultural Industry**

**Raman Ramachandran**  
**Head South Asia, Chairman & Managing Director,**  
**BASF India Limited**  
**May 26, 2018**

# Ten billion people in 2050 but only one Earth



...people by 2050



...of world population will live in cities by 2050



...more primary energy consumption by 2050



...more food needed by 2050

**Grower**



**Low Productivity**



**Smaller and shrinking land holdings**



**Poor farm economics**

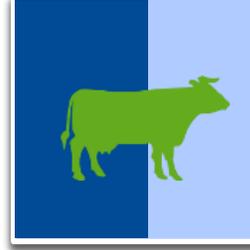


**Demand and supply gap**



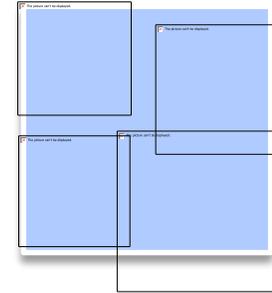
**Impact of climate change**

**Consumer**



**Changing dietary needs**

**Government**



**Short term policies & inadequate infrastructure investment**

*UN 2015 estimates; FAO 2015 estimates; World Bank 2015 report*

■ **Immense pressure on Indian Agriculture**



# Innovate to overcome Challenges

Feeding more than a Billion



**Innovate to grow more**



**Innovate through Information Technology**



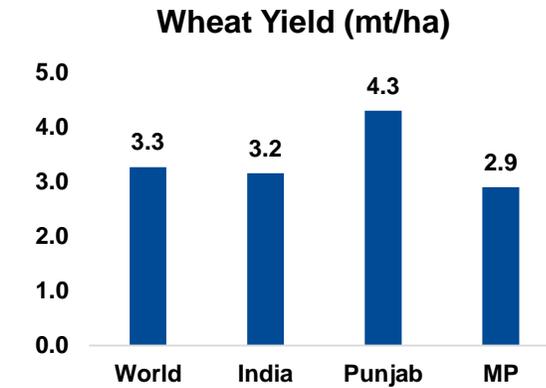
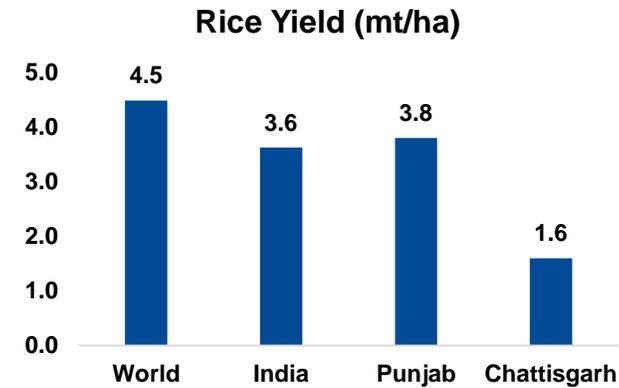
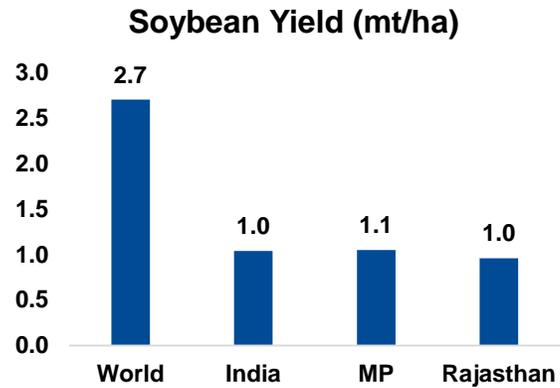
**Innovate to reduce losses**



**Innovate through Science**



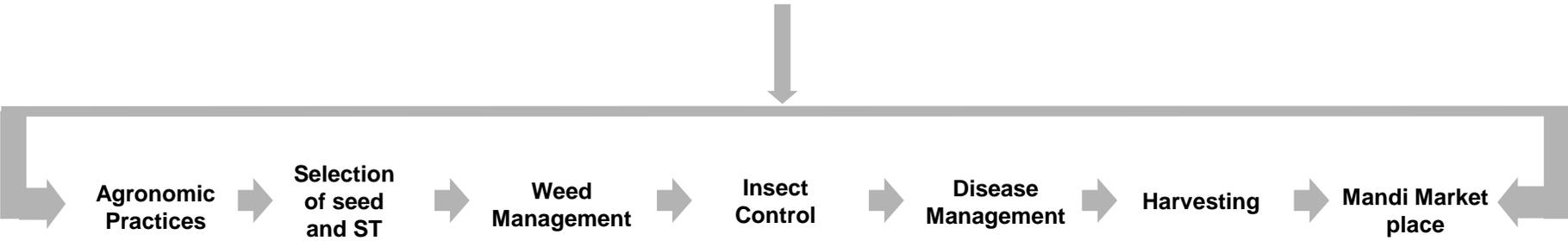
**Doing Responsibly**



Source: Rice, wheat & corn: Directorate of Economics & Statistics, Ministry of Agriculture. Pocket Book of Agriculture Statistics 2015  
 Soybean: United States Department of Agriculture(2014 - 15), SOPA 2016 estimates



Activities from before the season to harvest addressing levers which enhance Soybean yield



Demonstrated Samruddhi to **30,000** farmers in 2007 which has increased to **325000** farmers in 2014



Focus on making farmers more successful





Source: TRAI, July 2017

**~460 million** internet users in India, 2nd largest

**26%** of the Indian population with Internet access

By 2021, there will be **~730 million** internet users in India

**75%** of new Internet users in India from rural areas



**Weather**



**Advisory**



**Market Access**



**Crop Prices**

- **Enable farmers in Decision making**



**Cold storage**



**Transportation & logistics**



**Food packaging**



**Pest management**

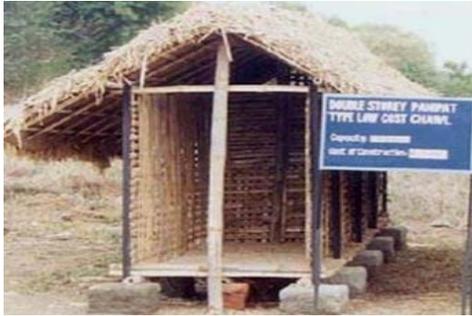


**Drip irrigation**



**Food processing**

- **Inadequate storage infrastructure, insufficient supply chain, poor packaging are key focus areas**

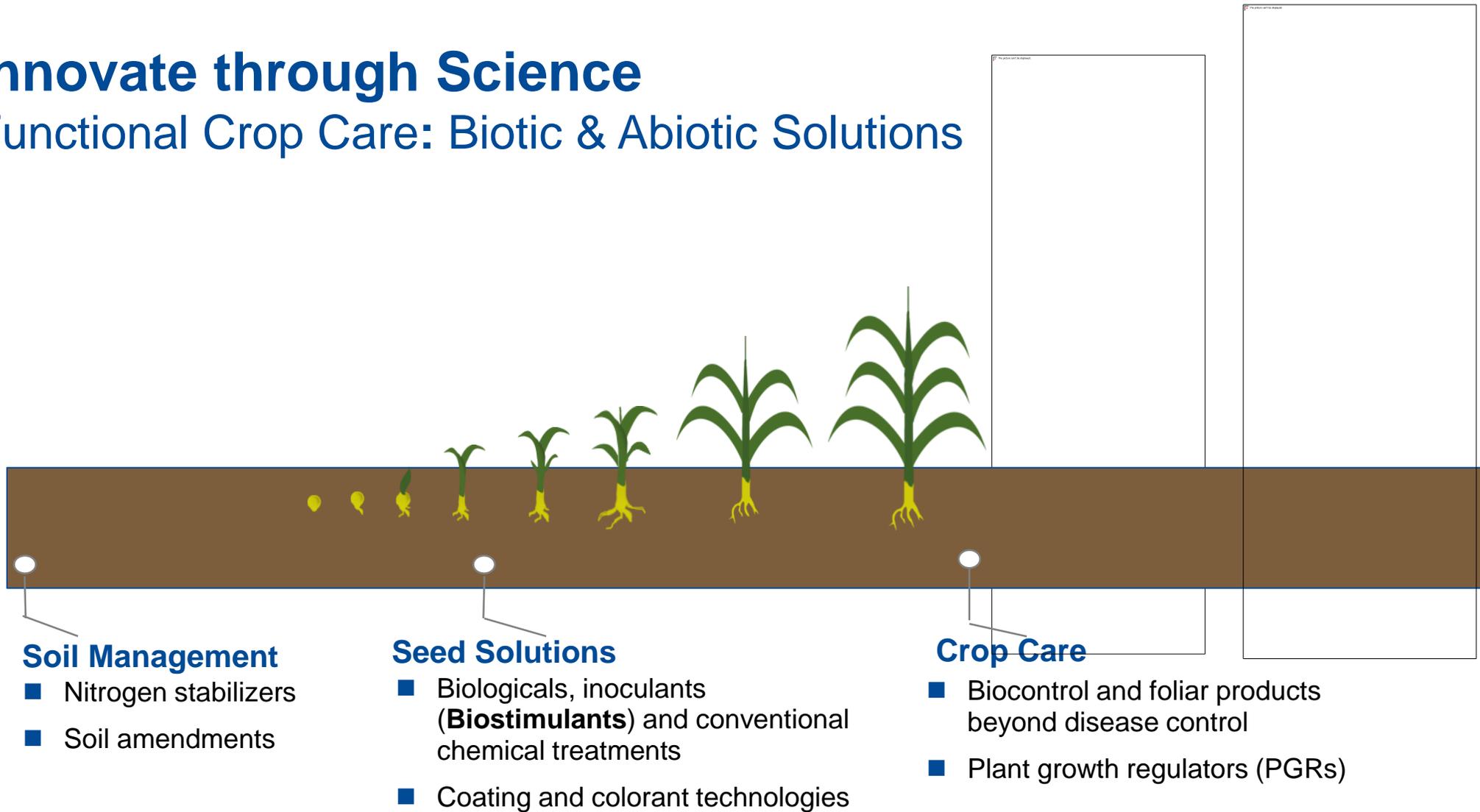


Source:[http://rkvy.nic.in/static/download/RKVY\\_Sucess\\_Story/Maharashtra/Stable\\_Prices\\_with\\_Onion\\_StorageFinal.pdf](http://rkvy.nic.in/static/download/RKVY_Sucess_Story/Maharashtra/Stable_Prices_with_Onion_StorageFinal.pdf)

- Storage losses reducing **25-30%** as in traditional storage to 5% for scientific storage
- Consumers benefit from less volatility in the prices of Onion when they arrive in market
- Onion storage has also facilitated promotion of onion exports from India

# Innovate through Science

## Functional Crop Care: Biotic & Abiotic Solutions



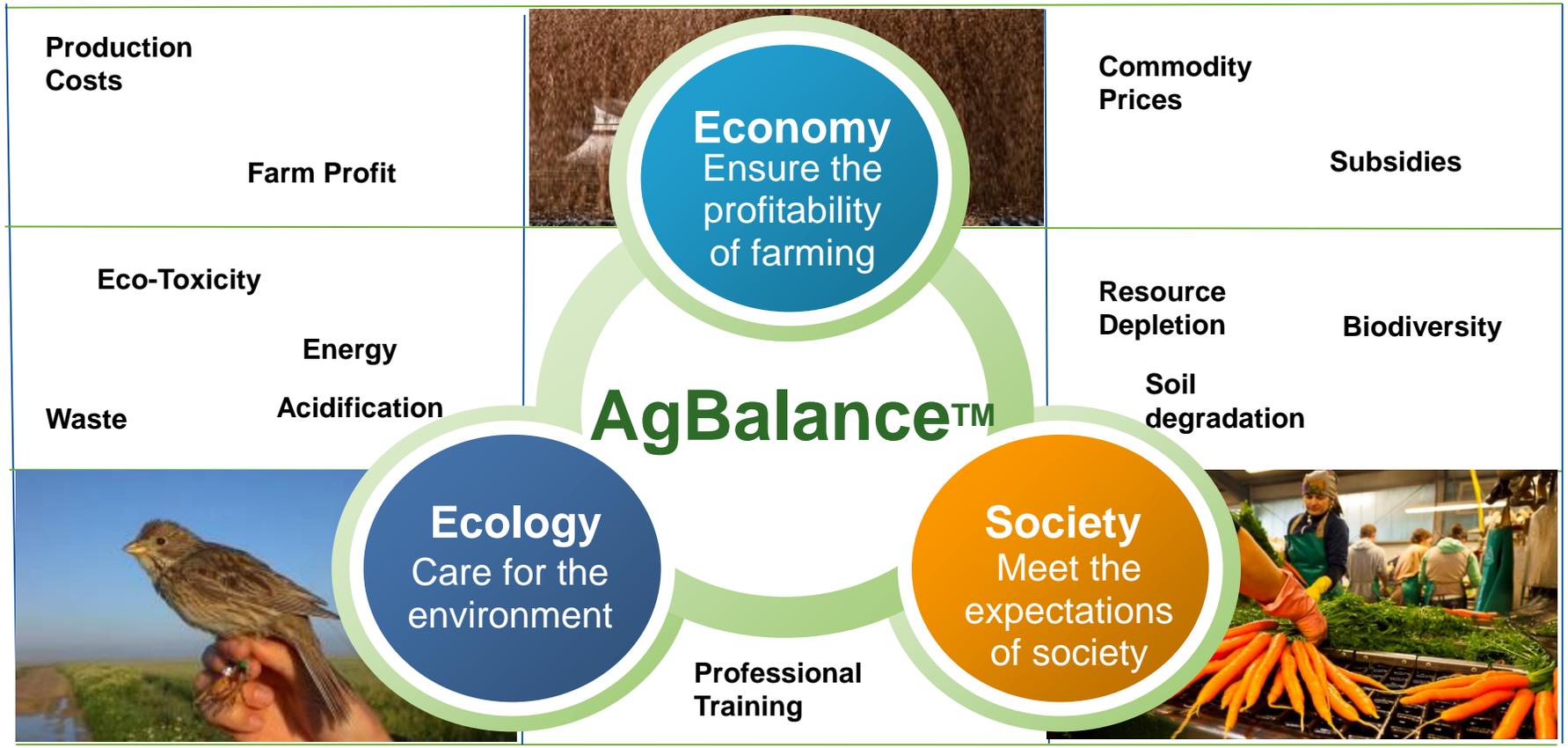
- Harnessing innovations in Chemistry, Biology & Technology to unlock potential in soil, seed and crop

# Xanthion<sup>®</sup> – In-furrow fungicide

The first fungicide to combine chemistry and biology

- Extended disease protection by covering the area around the seed
- A combination of the powerful active ingredient F500<sup>®</sup> and the biological fungicide Integral<sup>®</sup>
- Complementary biological and chemical modes of action deliver longer lasting disease control
- Enhances root growth, seedling vigor and cold tolerance
- In-furrow application by using a special BASF injection system







More than  
**23000**  
farmers trained



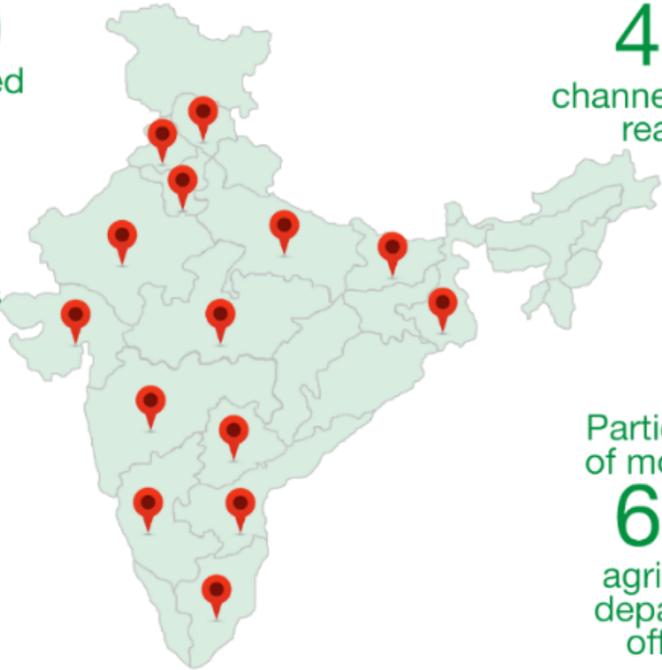
Over  
**1200**  
lady farmers  
trained



Over  
**4000**  
spray men  
trained



More than  
**400**  
channel partners  
reached



Participation  
of more than  
**600**  
agriculture  
department  
officials



- Dedicated meeting platform educating farmers on **9 steps** of responsible use of crop protection products.
- Emphasis on use of (PPE) -**24,800 Sanrakshan kits** till 2017
- **71,000 farmers** and **11,800 agricultural sprayers** engaged since 2016

## Challenges

### Grower



Lower Productivity



Smaller and shrinking land holdings



Demand and supply gap



Impact of climate change

### Consumer



World's most populous nation by 2022



Changing dietary needs

## Enablers



Innovate to grow more



Innovate through Information Technology



Innovate to reduce losses



Innovate through Chemistry

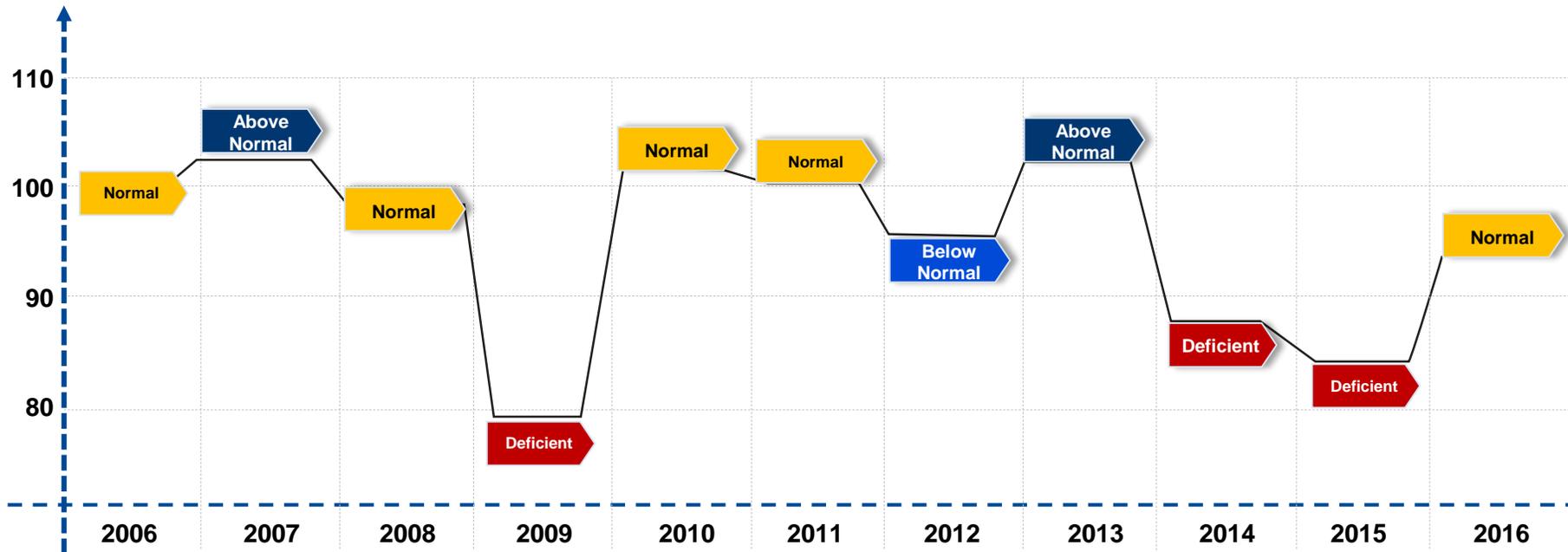


Doing Responsibly

■ Enable success of the farmer



We create chemistry



Source : IMD, Pune

- 1901 – 2011 : 13 Above Normal & 20 Deficit Monsoon Years
- 2005 – 2015 : 2 Above Normal & 3 Deficit Monsoon Years

	GC Area (m Ha)	% Irrigated
Rice	43	58%
Cotton	12	34%
Wheat	31	93%
Soybean	11	0.6%
Sugarcane	5	95%
Groundnut	5	26%
Corn	9	25%

- Rainfed Crops have higher level of business volatility

