



Science For A Better Life



# Bayer's View on Crop Protection in Cotton

33<sup>rd</sup> International Cotton Conference Bremen

March 18<sup>th</sup> 2016, Dr. Martin Märkl



# Forward-Looking Statements

This website/release/presentation may contain forward-looking statements based on current assumptions and forecasts made by Bayer management.

Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the company and the estimates given here. These factors include those discussed in Bayer's public reports which are available on the Bayer website at <http://www.bayer.com/>.

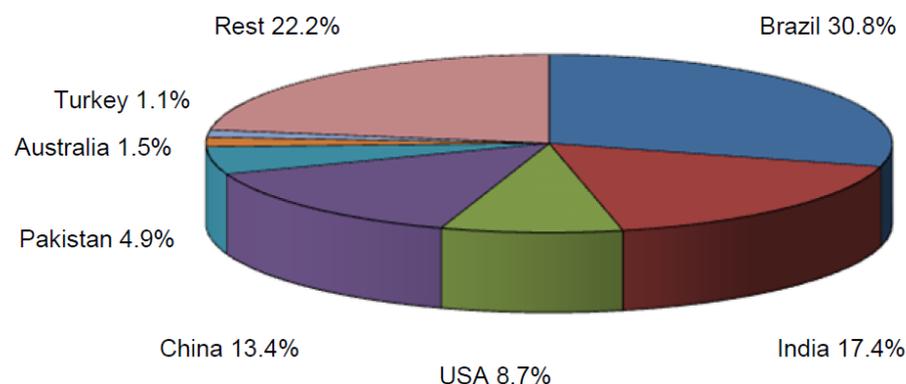
The company assumes no liability whatsoever to update these forward-looking statements or to conform them to future events or developments.



# Cotton Insecticides Market in 2014

(in 2015 market declined by ~ 10%)

## Regional Market Division



**Total = \$1,720 million**

Cotton is the fourth largest insecticide market by crop

**Brazil, India, China, USA, and Pakistan** represent **75 %** of the Cotton Insecticides Market

## Leading Products and Markets

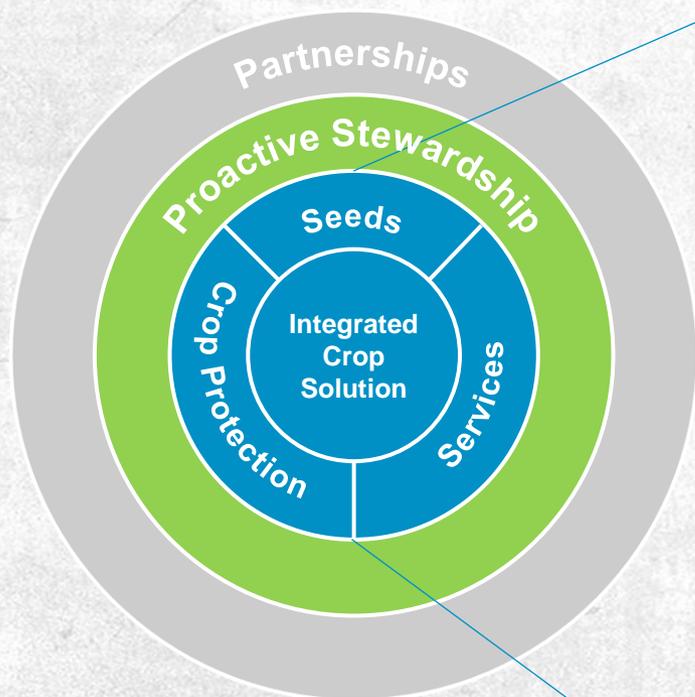
Products	
1	Diafenthiuron
2	Imidacloprid
3	Abamectin
4	Acetamiprid
5	Chlorantraniliprole
6	Acephate
7	Carbosulfan
8	Thiamethoxam
9	Flubendiamide
10	Spinosad

Modern, selective chemistry (CNI's, IGR's, Diamides) dominate cotton insecticide market, however low cost organophosphate and carbamate commodities are still widely used

# Integrated Crop Solutions are the core of our offering



Providing **Integrated Crop Solutions** for protecting crop yield & quality



## Seeds

- Canola, oilseed rape (OSR)
- Cotton
- Rice
- Soybean
- Wheat
- Vegetables



## Chemical & Biological Crop Protection

- Herbicides
- Fungicides
- Insecticides
- Seed Treatment products



## Services

- Sharing know-how
- Optimizing yield & quality
- Improving farm management



# With Integrated Crop Solutions, farmers will be able to address unmet needs



**Solution Thinking**

**Product Thinking**

## Customer needs

- ✓ Sustainable Cropping
- ✓ IPM/ICM compatible  
*(e. g. safe for beneficials)*
- ✓ Reducing losses
- ✓ Compete some difficult pests/  
diseases (e. g. thrips, bacteria,  
nematodes, etc.)
- ✓ Yield increase *(quality & quantity)*  
i. e. *plant health/yield enhancement*
- ✓ Resistance Management
- ✓ Low chemical input
- ✓ Flexibility in use *(low REI or PHI)*
- ✓ Operator and Environmental safety

# Major Stewardship Targets



## Human safety

- **Operators** – personal protection, safe working conditions, safe product use and re-entry periods
- **Bystanders & residents** – ensured safety during application

## Environmental safety

- **Protection** - of sensitive areas from spray drift
- **Safety** – in water, air & soil for fish, birds, wildlife and other terrestrial organisms
- **Safeguard** - pollinators, beneficial insects & non-target crops

## Field performance

- **Compatibility** – optimal crop selectivity and safety
- **Sensitivity** – monitoring change in sensitivity, resistance management and impact on product performance
- **Integration** - IPM / ICM / IRM\* - uses & programs

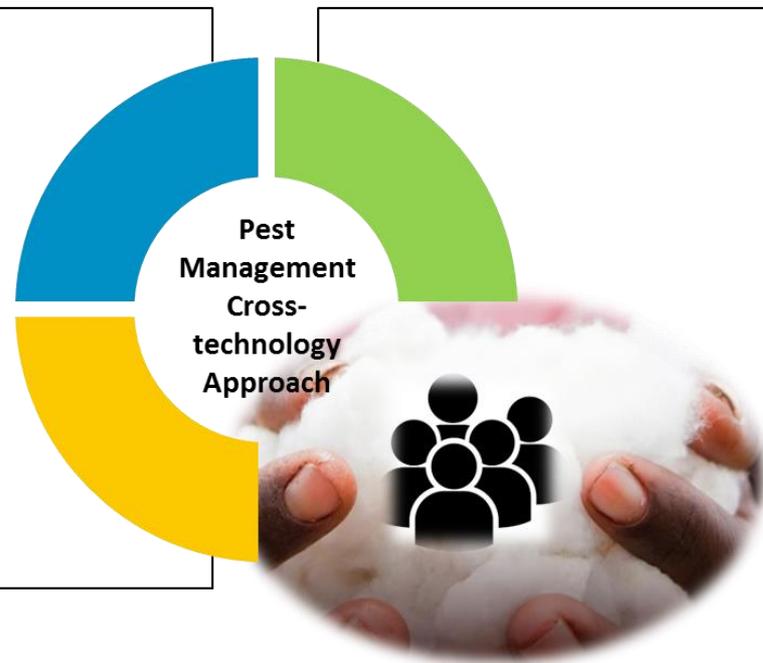
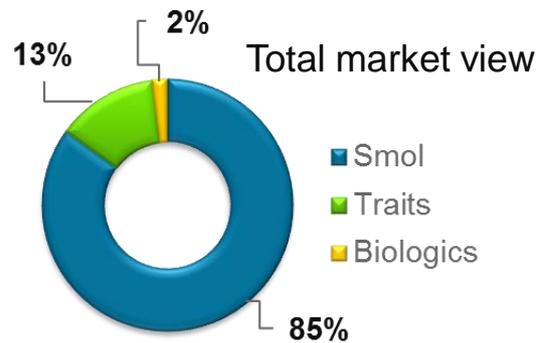
\* IPM – Integrated Pest Management; ICM – Integrated Crop Management; IRM – Integrated Resistance Management

# PM Cross-Technology approach delivers integrated solutions for future pest control



Small Molecules

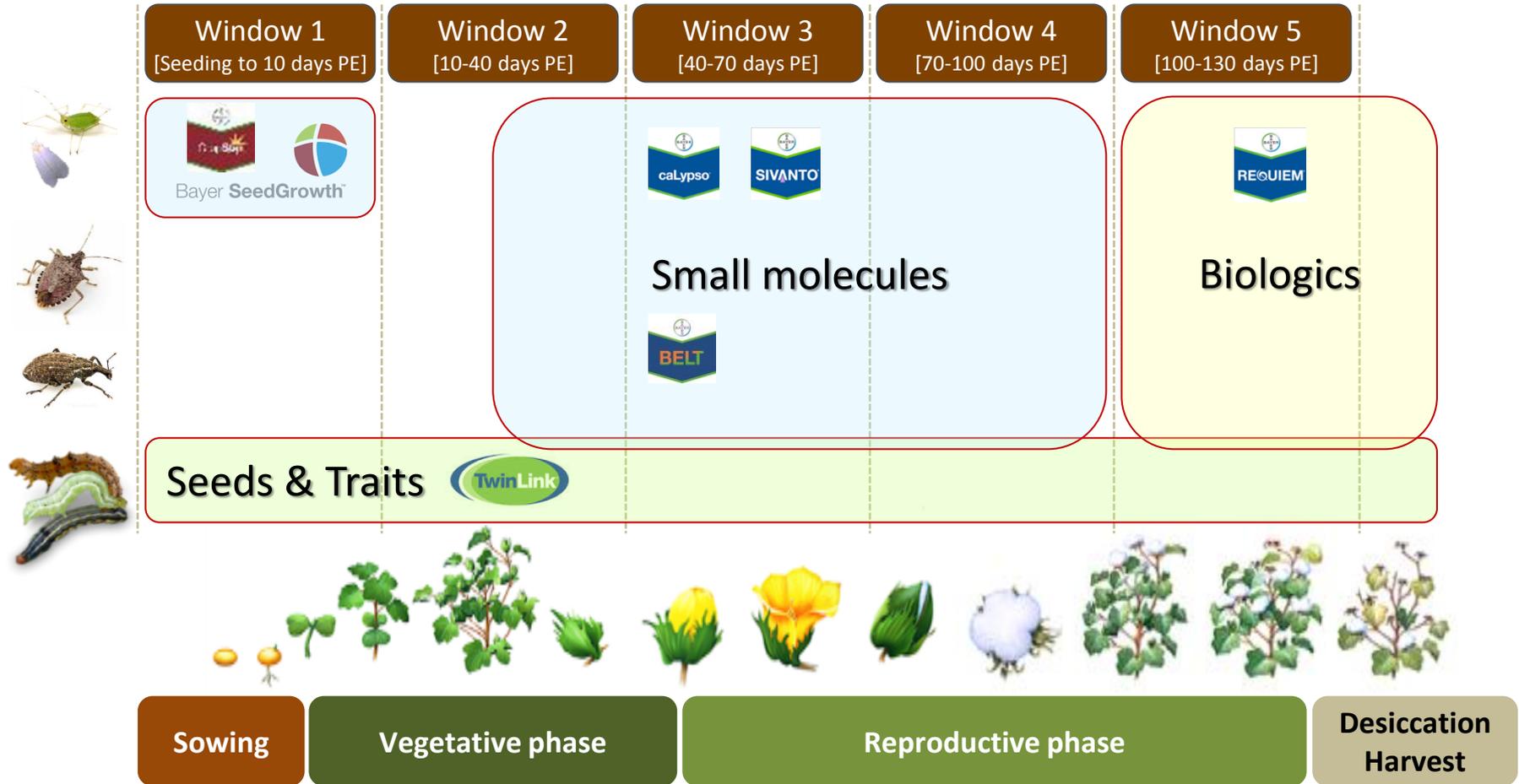
Seeds & Traits



Biologics



# Cross-Technology approach for sustainable and season long pest management in cotton





# Our Portfolio: Votivo™

➤ **Product category:** Biological nematode suppressant and plant growth promoter

➤ **Beneficial bacteria:** *Bacillus firmus* I-1582

➤ **Mode of action:** Root colonization, dissolves cell wall of nematode eggs, induced systemic resistance, diminishing of signaling Between nematodes and plant, production of phytohormones

➤ **Crops:** corn, soy, cotton (seed treatment); vegetables

➤ **Registrations\*:** USA, Canada, Mexico, South Africa, some European countries

➤ **Pest / disease spectrum:** Nematode damage reduction; increased plant growth

➤ **Main formulations:** Votivo FS 240, Poncho/Votivo FS 610, Flocter WP 5



**Product benefits:** Broad spectrum nematode damage reduction; promotion of plant vigor, root, stand and yield



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Thank you!