Bayer’s View on Crop Protection in Cotton
33rd International Cotton Conference Bremen

March 18th 2016, Dr. Martin Märkl
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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%)

Source: PhMcDougall

Cotton is the fourth largest insecticide market by crop

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

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

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

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

Total market view

- Small Molecules
- Seeds & Traits
- Biologics

- Smol
- Traits
- Biologics

Pest Management Cross-technology Approach
Cross-Technology approach for sustainable and season long pest management in cotton

Window 1 [Seeding to 10 days PE]
Window 2 [10-40 days PE]
Window 3 [40-70 days PE]
Window 4 [70-100 days PE]
Window 5 [100-130 days PE]

Small molecules

Seeds & Traits

Biologics

Sowing
Vegetative phase
Reproductive phase
Desiccation Harvest
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, dimishing 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

*Status: March 2016; partially preliminary registrations*
Thank you!