



Start clean, stay clean – The important role of IPM in stored grain

Joe Barile, BCE
Technical Service Lead
Pest Management & Public Health
Bayer Crop Science



////// The insect challenge

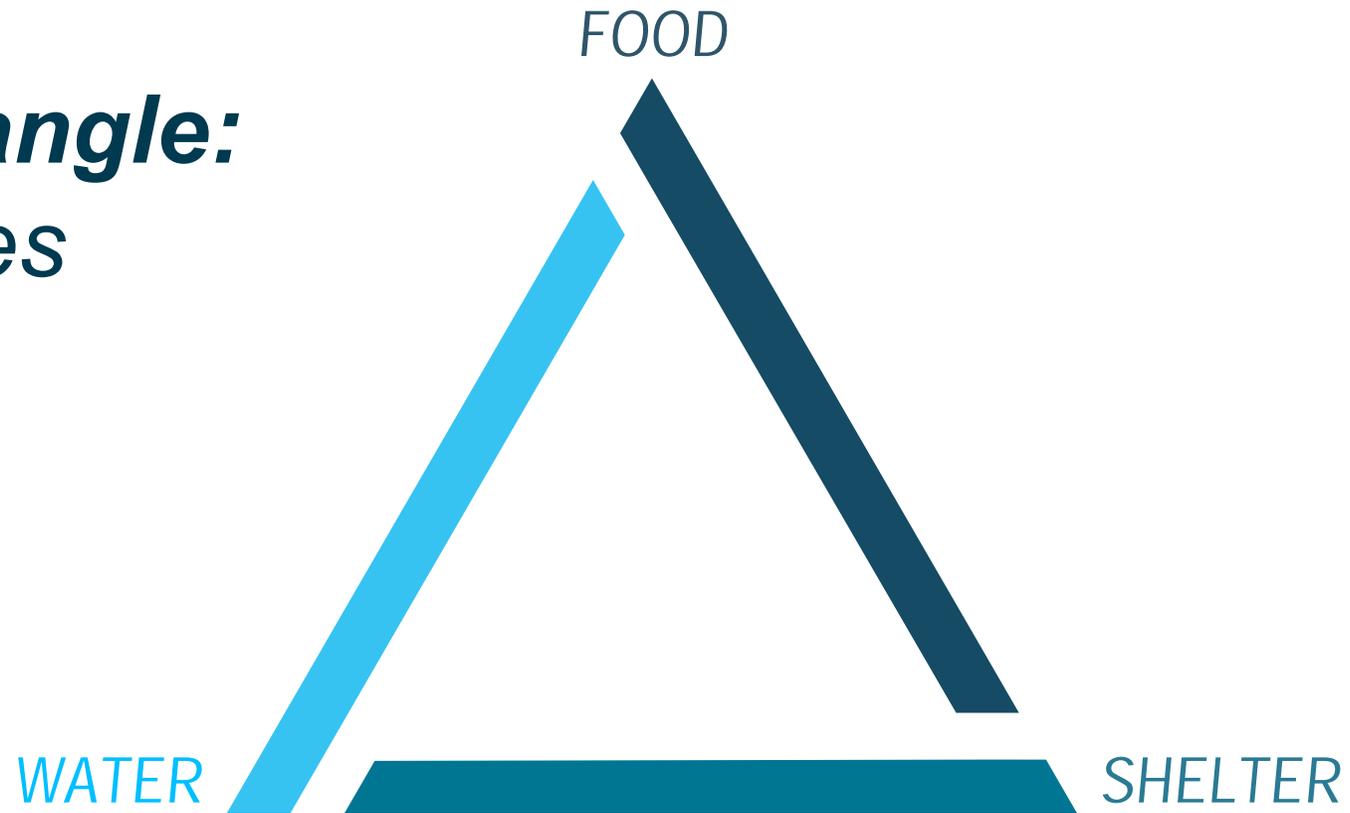
// United States Department of Agriculture estimates that annual postharvest losses are as high as \$2.5 billion (all pests)

// Insects:

- Adaptive
- Variety of species/behaviors
- Life cycle management
- Resilient

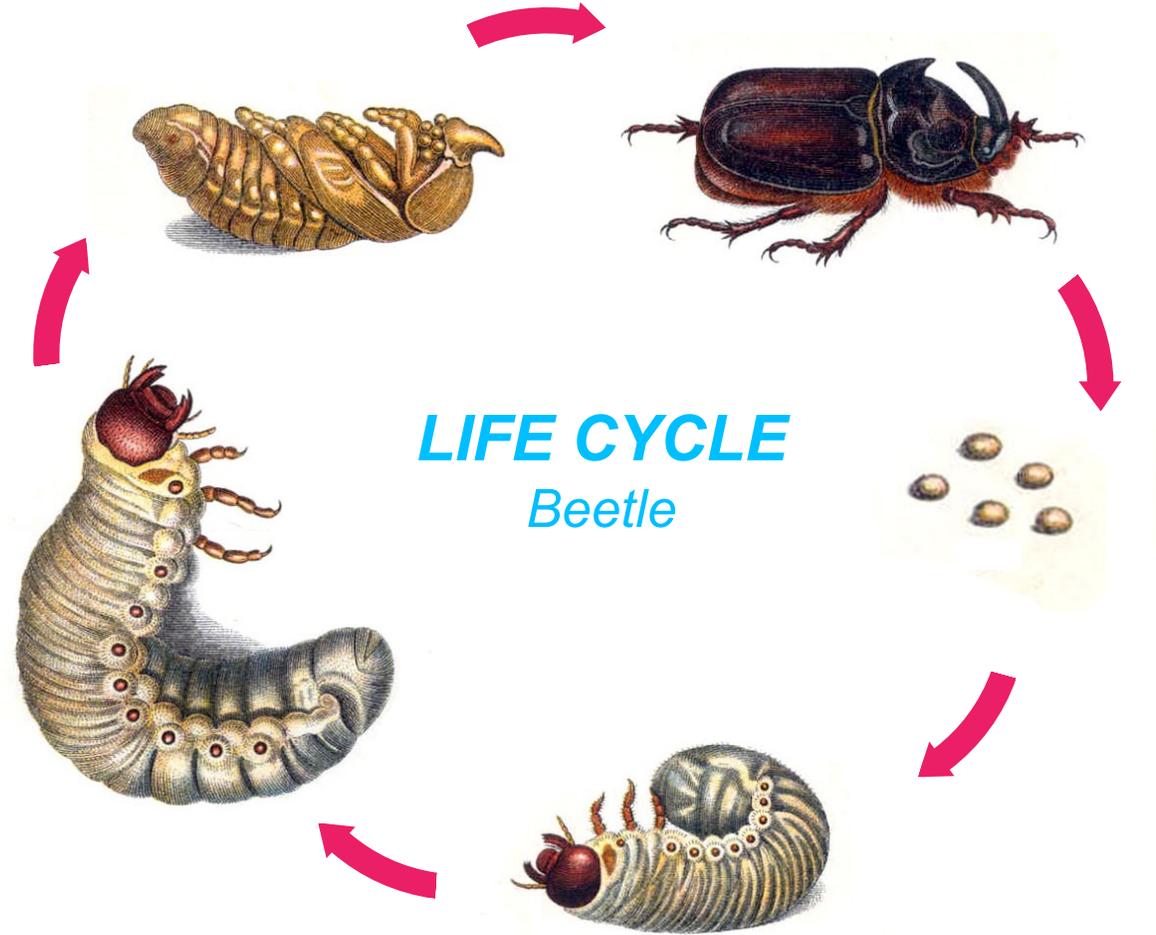


////// ***Pest Triangle:
Resources***



////// The insect challenge

- // Life cycle management: Damaging phase
- // Seasonality
- // Alternate/refuge harborage





//// //// //// //// //// **Successful service with IPM**

// Commit to an integrated pest management program

// Follow the basic IPM model:

- Understand goals
- Inspect and identify
- Monitor
- Cultural control
- Physical control
- Mechanical control
- Biological control
- Chemical control
- Follow-up and communications



////// **Grain insect IPM:**
S.L.A.M.

- **S**anitation
- **L**oading
- **A**eration
- **M**onitoring



////// Grain insect IPM: **S.L.A.M.**

// Sanitation

// Site:

- All about the spills
- Equipment
 - Conveyors
 - Vehicles/trailers

// Secondary pests:

- Rodents
- Birds



A photograph showing several large, dark-colored grain silos in the background under a blue sky with scattered white clouds. In the foreground, there is a field of tall, golden-brown grasses, likely a weed or grain crop, which are slightly out of focus.

//////// Grain insect IPM: S.L.A.M.

// Sanitation

// Site:

- Vegetation management
- Grasses and flowering weeds
 - Harborage
 - Food: pollen

// Recommended product:

Bayer's Esplanade[®] EZ herbicide



//////// Grain insect IPM: **S.L.A.M.**

// Sanitation

// Bins:

- Before refill, remove residual grains and accumulated dust
- Anchorage harbor sites



//// Grain insect IPM: **S.L.A.M.**

// Sanitation

// Loading:

- Grain should be evenly spread as it enters
- If desired, grain protectants can be use during loading
- Ensure protectants carry a reduced-risk classification from the EPA for on-grain application

// Product Recommendation:

Sensat[®] insecticide or Suspend[®]
SC insecticide





//////// Grain insect IPM: **S.L.A.M.**

// Sanitation

// Loading

// **Aeration:**

- Lowers grain temperature
- Lowers grain moisture
- Slows insect development



//// Grain insect IPM: **S.L.A.M.**

// Sanitation

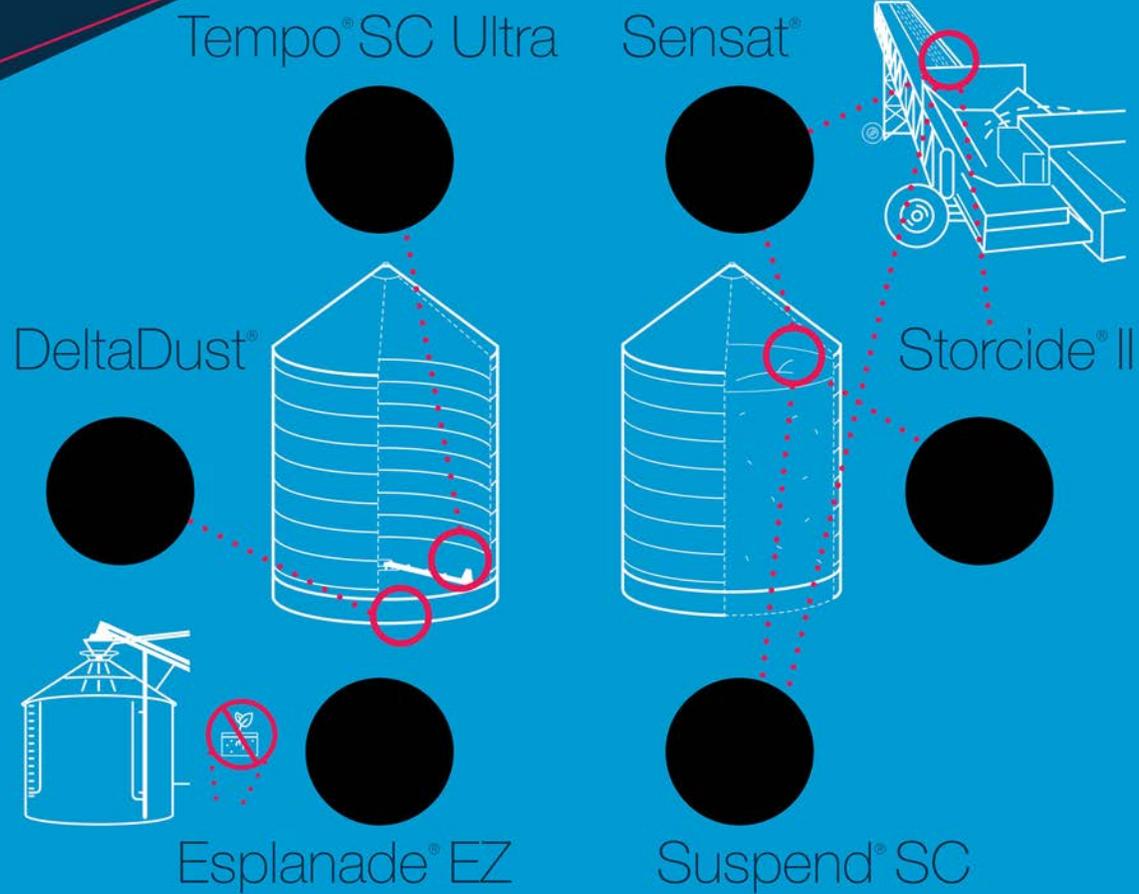
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// Aeration

// **Monitoring:**

- Active: grain probes
- Passive: pheromone traps and probes
- Automatic temperature and/or humidity monitor systems





Stored grain insecticides

- *Fumigants*
- *Bin treatments*
- *Exterior perimeter treatments*
- *Auger/void treatments*
- *Grain protectants*

Stored grain insecticides



////// **Bin treatments**

- // **Residual insect control on interior bin/storage surfaces**
- // **Tempo® SC Ultra insecticide:**
 - Beta-cyfluthrin
- // **Suspend® SC insecticide:**
 - Deltamethrin



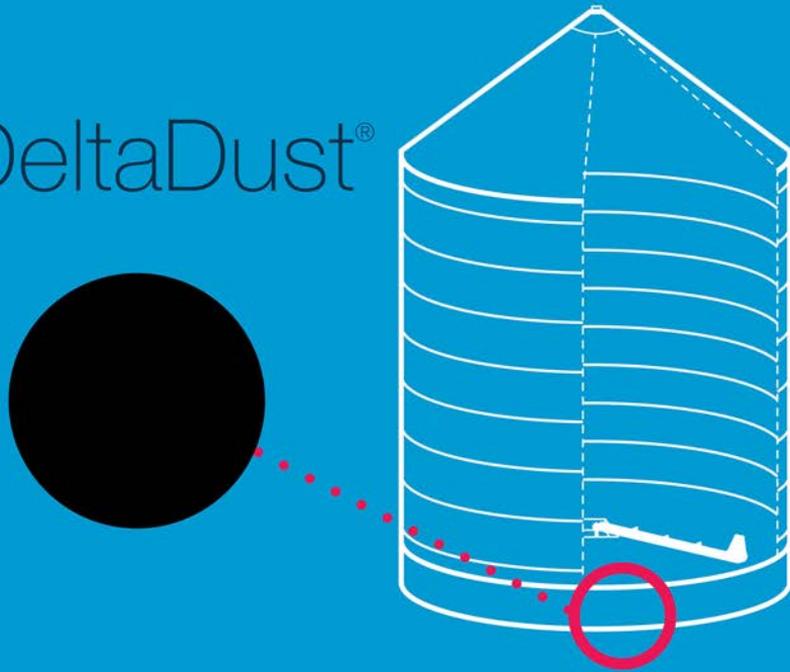
//// Exterior perimeter treatments

- // Tempo[®] SC Ultra insecticide*
- // Suspend[®] SC insecticide*
 - Residual control of invading grain insects



Stored grain insecticides

DeltaDust®



////// **Auger/void Treatments**

// **DeltaDust® insecticide:**

- Waterproof dust formulation of deltamethrin
- Enclosed voids
- Long residual control



Stored grain insecticides



//// Grain protectants

// Suspend® SC insecticide:

- Water-based
- Suspension concentrate containing deltamethrin



Stored grain insecticides



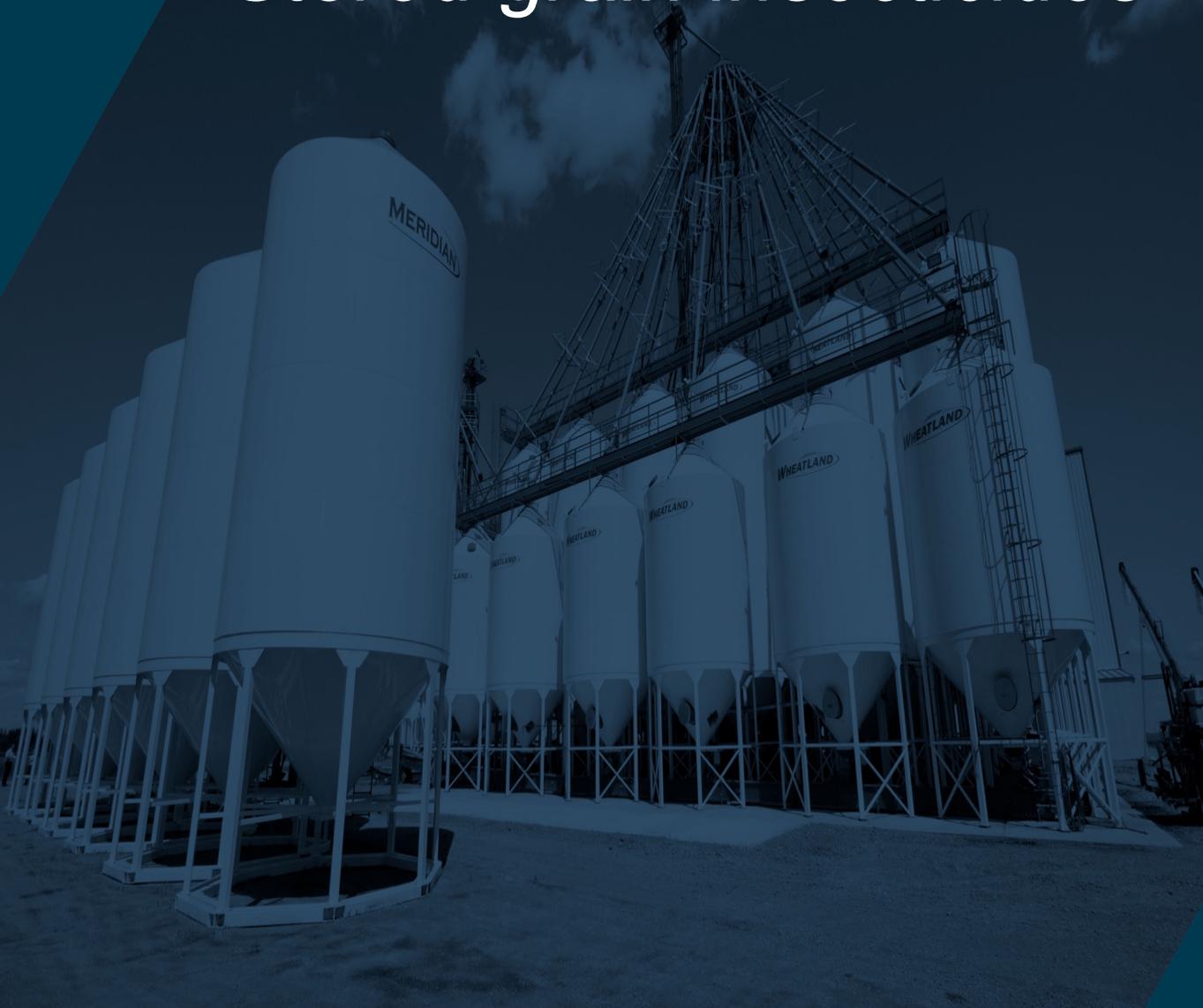
//// Grain protectants

// Sensat® insecticide

- Effective, reduced-risk insecticide for the protection of stored grain and seed
- A novel mode-of-action insecticide derived from natural products obtained by fermentation of the bacteria *S. spinosa*



Stored grain insecticides



Storcide[®] II

//// Grain protectants

// Storcide[®] II insecticide

- Bayer notified the EPA that Storcide II would not be supported for reregistration
 - Import/MRL issues globally
- Chlorpyrifos status
- Existing stock in the marketplace may be used according to label directions



////////// *Thank you for your attention*

Joe Barile, Technical Support Lead

joe.barile@bayer.com

Joe Grippi, Business Development
Key Account Manager

joe.grippi@bayer.com

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.

Bayer Environmental Science, a Division of Bayer CropScience LP, 5000 CentreGreen Way, Suite 400, Cary, NC 27513. For additional product information, call toll-free 1-800-331-2867.

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