KNOW YOUR ENEMY:
Five Big Pest Threats!

Mark VanderWerp, BCE

KILL THEM WHEN YOU FIND THEM:
Pest Management Strategies After They're In

Mark VanderWerp, BCE
WHY?

- The important bugs are the microscopic ones right?

Infections by Month
BIRDS

Let’s Review:

• 3 species of primary concern.

- House Sparrow
- European Starling
- Pigeon

BIRDS

Challenges:

• Problem areas tend to be out of sight, at elevation, and expensive to remedy. Many PMPs don’t offer comprehensive bird services.

Why we care:

• Product contamination, pathogen vectors, audit failures, building damage, & slips/trips.

Nuisance & Aesthetic too!
BIRDS

Inspection Tip: Follow the Poo!

Photo: John Steenstra
**BIRDS**

**Control Options:**
- Exclusion
- Trapping
- Repellants – Baiting
  - Scare devices
- Aggressive Harvesting

**BIRDS**

**The Biggest Challenge:**
Habituation to the Situation!
BIRDS

Best summarized by an ancient Chinese proverb:

The best time to plant a tree was twenty years ago...

The second best time is now.

I’ll stick with aggressive harvesting...

STORED PRODUCT PESTS

Let’s Review: Indianmeal Moth (Plodia interpunctella)
STORED PRODUCT PESTS

**Let’s Review**: Flour Beetles (*Tribolium* sp.)

![Flour Beetle Image]

STORED PRODUCT PESTS

**Let’s Review**: Warehouse Beetles (*Trogoderma* sp.)

![Warehouse Beetle Images]
STORED PRODUCT PESTS

Challenges:
• Small insects, hidden feeding habits, utilize some of the same food items as we do.

Why we care:
• Product loss, contamination, rejected shipments, brand damage.

STORED PRODUCT PESTS

Species ID is Needed to Proceed:
• What does it eat?
• How long does it take to mature?
• How many offspring will it have?

How good are the Pest Mgmt. Records?
• Does the system allow the technician to document the pests that are important to the facility?
STORED PRODUCT PESTS

ID Allows Correct Pheromone Selection

TIP:
Remember, your pheromone traps are NOT your control!

They are your early warning system.
I've never seen such a small body count!

TIP:
No pheromones? At least install some ILTs!
STORED PRODUCT PESTS

**Inspection Tip:**
Find tough to clean spots

**Control Tips:**
Sanitation!
Interior & Exterior
STORED PRODUCT PESTS

Control Tips:
Spot applications of Insecticides

Control Tips:
Fogging with a non-residual

Photo: Paul Redwine
STORED PRODUCT PESTS

Control Tips:
Fumigation

Best summarized by an old Dutch saying:

“If everyone swept the pavement in front of his house, the whole street would be clean.”

Some clean with brooms, others clean with fire!
FLIES

Challenges:
• Mind-boggling reproductive and dispersal capabilities.

Why we care:
• Product contamination, pathogen vectors, audit failures, loss of employee morale, some species blood feed.

Let’s Review:
Biting Flies  Small Flies  Filth Flies  Seasonal Invading Flies
**FLIES**

**Inspection Tip:**
Segregate potential sources
FLIES

Control Tip: Find the maggots and remove the media they are in.

FLIES

Control Tip: Physically exclude adult entrance were larval removal isn’t possible.
FLIES

American Protestant axiom:

“Don’t curse the darkness—light a candle.”

COCKROACHES

Challenges:
• Harbor in tight spots, sewers, wall voids and may be readily moved by commerce and personnel.

Why we care:
• Product contamination, pathogen vectors, audit failures, loss of employee morale.
COCKROACHES

Let’s Review:

Inspection Tips:
Monitors are a must!
COCKROACHES

Inspection Tips:
Monitors can be used to isolate equipment.

COCKROACHES

Inspection Tips:
Monitors can be used to isolate deliveries.
COCKROACHES

Control Tips:
Be versatile. No favorite products allowed!

• If you have an AML, this is huge!

COCKROACHES

Control Tips:
Good baiting technique must be taught!

Inject into harborages, not middle o’ the wall!
COCKROACHES

Control Tips:
Baiting should look like this!

COCKROACHES

Control Tips:
Be sure to do other things besides baiting
COCKROACHES

Senegalese proverb:

“Haste and hurry can only bear children with many regrets along the way.”

OCCASIONAL INVADERS

Challenges:

• Various species, with dissimilar habits and dietary requirements. Large populations may be unavoidable in certain areas, or difficult to predict year over year.

Why we care:

• Product contamination, rejected shipments, nuisance.
OCCASIONAL INVADERS

Hold on! What is an Occasional Invader?

Here's a Definition: Organisms that live in the area surrounding the structure and occasionally enter the structure. They may enter intentionally or accidentally, but do not reproduce (and rarely even feed) when indoors.

OCCASIONAL INVADERS

Am I an Occasional Invader?

No, you’re considered Nuisance Wildlife—Now Beat it!
OCCASIONAL INVADERS

Kinda like Space Invaders...

They are a Biological Reflection of Your Building
OCCASIONAL INVADERS

They are Underemphasized in your Pest Management Program! And May Cause Headaches!

• As a manufacturer you may not be covered for them.
• As a PMP you may be encouraged to not document them.
• As an entomologist you may know nothing about them!

Case Study
OCCASIONAL INVADERS

Control Tips:

• Landscape Options
• Building Sealing & Exclusion
• Exterior Lighting
• Perimeter Barrier Treatments

Wisdom of the Kentucky Governor:

“While it may seem small, the ripple effects of small things is extraordinary.”

These small bullets don’t seem to bother me.
PILLARS OF GOOD PEST MANAGEMENT...

- Monitoring/ID
- Exclusion
- Integrated Controls
- Sanitation
- Record Keeping