CIDETRAK® IMM and STORGARD® IMM+4

Plodia interpunctella

CIDETRAK® IMM and STORGARD® IMM+4 Monitoring Guidelines for Use

IMM Identification, Biology and Phenology

Insect Description:

Adults: Wingspan: 19mm. Forewings: silver-gray. Distal two-thirds of the forewings, red- to copper-brown. Hindwings, dull white. Short-lived. Adults do not feed.

Eggs: 300-400. Laid on or near stored cereal, flours, or other larval food sources. 0.3-0.5mm Long. Oval. Reticulated chorion. White to yellow-white.

Larvae: Growth to 12.5mm. White when eggs hatch. During development, hues of yellow, green, tan, and pink. Mature larvae, dull white. Mature larvae live and feed in spun-silk cocoons and will wonder/leave feeding site to pupate.

Pupae: Slightly larger in size than larvae. Light brown.

Host: All types of stored-grains, especially food-products high in carbohydrates and proteins: corn meal (Indianmeal), cereals, packaged cereals, flours, beans, candies, chocolate, nuts, and dried fruits and meats.

Cause of Damage:

Consumption of stored grain by larvae; infests field crops such as drying and dried raisins, cherries, apricot and peach pits. Contaminates stored products with silken web and frass.

Phenology[1]:

Life cycle	28-35 days[2]
Eggs Hatch	2-22 days
Larvae (while feeding)	21-240 days
Pupae	4-9 days
Mating/oviposition	1-2 days after eclosion
Adult life-span	2-7 days
Threshold temperature	15°-32°C (59°-90°F)

Notes concerning phenology:

[1]In the absence of definitive date, Trece, Incorporated, offers this concept of phenology from available sources and field experience.

[2]As many as 8 overlapping generations per year.

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The following IPM Partner Guidelines provide a base approach to monitoring for IMM and related moths, following with application of CIDETRAK IMM to food plants, warehouses and retail facilities.

STORGARD II & III – Program Initiation and Use Pattern:

- Initiate monitoring program with a full-area survey for at least one month while there is insect activity.
- Monitor incoming commodities and off-loading areas aggressively.
- Position traps in grid pattern.
- Space traps 50-60 feet (16-20 meters) apart.
- Mark traps and map location of traps. Use the map to pinpoint areas of infestation for future reference. Record capture data.
- Decrease space between traps with high capture rates as insects are first captured in order to pinpoint contaminated areas.
- Reduce the number of traps after the initial survey. Concentrate traps in high risk areas.
- Monitor on continuing basis.
- Replace trap every 4-12 weeks. Dusty conditions may require trap change more frequently.

STORGARD IMM+4 Lure Maintenance:

- Replace STORGARD IMM+4 pheromone lure every 4-12 weeks.
- Store unopened pheromone lures in factory-sealed package. Store in cool, dry place. Storage temperature is not to exceed 75°F (23.9° C).
- Freeze carryover stock (-10°C) to maintain full potency.

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CIDETRAK IMM Dispenser Application:

- Place dispensers at a height of 5 to 16 feet (1.5 to 4.8 meters) in a grid pattern over each floor or commodity of treated buildings.
- Attach dispensers securely to walls, pallets, columns, racking or ceiling hangers.

CIDETRAK IMM Dispenser Rate:

SINGLE DISPENSER –Product Code 8153-09

- Apply 1 dispenser per 3,531 to 10,594 ft^3 (100-300 m^3) or 160 to 480 mgs active ingredient respectively depending on the infestation level.

MESO™ DISPENSER - Product Code 8153-10

- Apply 1 MESO dispenser per 14,124 to 42,376 ft^3 (400-1,200 m^3) or 640 to 1,920 mgs active ingredient respectively depending on the infestation level.
- We suggest that you **initiate** your program with either 1 dispenser per 3,531 ft^3 (100 m^3) or 1 MESO dispenser per 14,124 ft^3 (400 m^3)
- Apply the maximum dispenser rate to all buildings that are heavily infested with one or more target species, or adjacent to an untreated building, where access is evident.

CIDETRAK IMM Dispenser Maintenance:

- Replace dispensers every 130 – 150 days.
- In areas with long field season (i.e. more than 120 days) a second application may be necessary, based on monitoring results, prior to subsequent IMM flights.

Timing

- Apply prior to moth emergence in early spring or between any generations in year round programs following seasonal fumigation of all insects.
- To assess the need for treatment, begin monitoring in early spring and continue throughout the season.
- Monitor moth activity using Trece's STORGARD II or III traps with IMM+4 lures or BROAD SPECTRUM™ QUICK-CHANGE™ MOTH STORGARD II or III traps.
- One may also supplement monitoring with STORGARD IMM oviposition traps.

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Treatment Tips

- CIDETRAK IMM suppresses mating of target insects. Immigration of mated female moths from adjacent, infested buildings can reduce the level of control.
- Area-wide treatment of entire sets of related buildings is the most effective strategy.
- Supplement CIDETRAK IMM with selected insecticide applications to control high populations. Monitor all pest populations to determine timely use of insecticides.
- Increase dispenser rate on borders in facilities threatened by adjacent populations.
- Consider management of high population pressures in adjacent areas by:
    1. Treatment of external sources of infestation with CIDETRAK IMM
    2. Treatment of external sources of infestation with an insecticide
    3. Treatment of pheromone treated buildings with insecticide
- Consult your local extension specialist, certified consultant, or Trece representative for local management strategies

Application Scenarios

Dispenser application patterns may vary according to the facility. Each facility's design and use relative to commodities, storage area, and equipment function such as food plants, baker's storage warehouse or retail unit (or a combined use) will dictate the pattern for CIDETRAK dispensers. However, many approaches have been tested or confirmed during testing and commercial use. The following schematics cover some general application approaches which have been proven successful in commercial use.

Food Manufacturing/Processing Facility:
It is critical to treat the general area and to concentrate some dispensers around susceptible equipment, packages or manufacturing sites.

Warehouse/Distribution Center:
It is critical to treat the general area and to concentrate some dispensers around susceptible equipment, packages or manufacturing sites.

Retail:
It is critical to treat both feeder warehouses and susceptible retail areas.

- Identify commodities/shelves most susceptible to Indianmeal Moth (IMM) in retail areas.
- Identify commodities/shelves most susceptible to Indianmeal Moth (IMM) in warehouse/storage area.

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CIDETRAK Installation

- Install CIDETRAK IMM in retail area between shelves at apex, or top, of shelves out of the way of equipment and personnel at a rate not to exceed 1 dispenser per 3,531 ft^3 or 1 MESO dispenser per 14,124 ft^3.
- Install CIDETRAK IMM in warehouse/storage area at a rate of 1 dispenser per 3,531 ft^3 or 1 MESO dispenser per 14,124 ft^3. (L x W x H). It is best to divide the total area by the number of total dispensers and install at equal distances.
- For best effect place more dispensers around the most susceptible commodities, open packages and door ways and use fewer dispensers in less susceptible areas such as hardware and non-food items.
- Continue to monitor traps year round.
- Reduced or no trap captures indicates effective control of IMM.
- In height of summer trap capture may increase slightly. Always read and follow the label.

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