Horticulture Diagnostic Laboratory

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Indian Meal Moth

Figure 1 – An adult Indian meal moth. *Note the bronze to reddish brown color of the outer 2/3 of the wings compared to the grayish white color of the inner 1/3 of the wings.* (Photo courtesy of Mike Boone, http://bugguide.net/node/view/25254

Injury: The Indian meal moth is one of the more common moths infesting stored grains and grain products. Others include the Mediterranean flour moth and the meal moth.

The larval stage causes the injury. Larvae feed on flour and meal products, dried fruits, nuts, bird food, and dried pet foods. As the larva feeds it spins a web, leaving behind a silken thread wherever it crawls. Small particles of food often adhere loosely to the thread, making it conspicuous.

Many times an infestation is noticed when moths are seen flying around the home in the evening. They are attracted to lights and often appear in front of the television screen.

Description: The Indian meal moth (**Fig. 1**) has a wingspan of about 3/4 inch (18-20mm). The color of the outer two-thirds of the wings is bronze to reddish brown, while the part of the wings closer to the body is grayish white. The larvae (caterpillars) (**Fig. 2**) are about 1/2 inch (12-13mm) long when mature. They are a dirty white color, sometimes exhibiting pink or green hues. The pupa (resting stage) is in a loose silken cocoon spun by the larva, and is a light brown color.

Life History: A female Indian meal moth can lay from 100 to 300 eggs during her lifetime. Eggs are laid singly or in groups on the food materials. Within a few days the tiny whitish caterpillars emerge. These larvae feed for a few weeks, and when they are mature they often crawl up the walls to where wall and ceiling meet, or crawl to the top of the cupboard, to spin the silken cocoon in which they pupate and from which the adult moth emerges. Mating occurs and the life cycle repeats itself. In warm weather the cycle may take only 6 to 8 weeks.

Management: The following suggestions may be useful in bringing an infestation quickly under control. Prompt action can be important in preventing losses of quantities of foods stored on kitchen or pantry shelves.

1) Carefully examine all susceptible foods that may have been exposed to infested material.
   a) Do not forget bird seed, dog, cat and fish foods. These are often the source of an infestation.
   b) Insects may even be found in paper wrapped products that have not yet been opened in the home. All infested packages should be discarded. There is no satisfactory way of separating the insects from the food products, flour, or meal.
2) The contents from opened packages that appear to be uninfested should be transferred to glass jars with tight fitting tops. It is possible that eggs were laid in these products and they may hatch later and lead to a new infestation if not contained.
3) Remove all food containers and utensils from the infested area (shelf paper may also need to be removed) and clean thoroughly, first with a vacuum cleaner and then with soap and water. Special attention should be

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paid to cracks and corners where bits of flour, meal or other products may have accumulated. Remove and destroy cocoons that may be found on ceiling of cupboards, or where room walls and ceiling meet.

Figure 2. Indian meal moth larvae feeding on birdseed. (Photo courtesy of L. Jesse, Iowa State

4) In many cases thorough clean-up will control these insects. In difficult cases, however, a pheromone sticky trap can help to catch flying male moths and reduce the numbers of adult moths. Pesticides are usually not necessary.

5) Continue to observe the area for several months after treatment. If moths reappear, clean-up may have been inadequate, or newly infested packages may have been brought into the kitchen.

Long term storage of flour and meal products often leads to infestation; therefore, such products should be purchased in quantities suitable for early use, unless adequate containers are employed.

Although we generally do not recommend treating food storage areas, in particularly difficult situations treating the corners of storage areas can be done with registered pesticides. One pesticide labeled for meal moth control in the home contains cyfluthrin. Treatment should be limited to corners of storage areas, using a paintbrush or spray can. Do not place and food or dishes back in closet until material is entirely dry.

Reprinted from *Indian Meal* prepared by Carolyn Klass, Senior Extension Associate, Department of Entomology, Cornell University and Edgar M. Raffensperger, Professor, Department of Entomology, Cornell University 1/1973.

5/03, Revised by Carolyn Klass

Updated 2/2009

The Pesticide Management Education Program (PMEP), in cooperation with the New York State Department of Environmental Conservation (NYSDEC), maintains a web site with a searchable database for pesticide products currently registered in New York State. Individuals who have Internet access can locate currently registered products containing the active ingredients suggested above at http://pims.psur.cornell.edu/ (NYS PIMS).

This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are still possible. Some materials mentioned may no longer be available, and some uses may no longer be legal. All pesticides distributed, sold or applied in New York State must be registered with the New York State Department of Environmental Conservation (NYSDEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional NYSDEC office. Read the label before applying any pesticide.

TK: 1/2010, AW: 11/2011