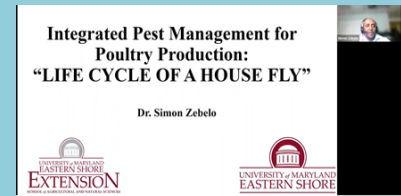


THE LIFE CYCLE OF A HOUSE FLY

UNIVERSITY OF
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EXTENSION

GROWER LUNCH BREAK NOTES May 4, 2022



Dr. Jennifer Timmons introduced our speaker, **Dr. Simon Zebelo**, Associate Professor of Entomology and Director of Plant Biology Center for Integrated Pest Management, both of UMES, who gave an extremely interesting talk on IPM for Poultry Production.

Watch the recording of his talk here: <https://tinyurl.com/2v62sare>

Dr. Zebelo begins with slides describing all the arthropod pests of **major concern** for commercial poultry operations: house fly, little house fly, black garbage fly, lesser mealworm or darkling beetle, hide beetle, Northern fowl mites, noting that they can transmit more than 100 human and animal disease-causing organisms.

He notes that A.I. is spread principally by contaminated shoes, clothes, and equipment, AND the virus has been isolated from *adult house flies*. He also mentions how other arthropods can cause structural damage to poultry houses, be transmitters of several poultry disease pathogens, and how mite populations cause economic losses by affecting bird health and production.

There are Also Beneficial Arthropods in the Poultry House: (Biological Control) Macrochelid mite, Uropodid mite, Hister beetle, *Muscidifurax raptor*, *Muscidifurax raptorellus*.

Poultry houses have perfect fly-breeding conditions year round due to manure accumulation and controlled temps. The house fly dispersal range is 1/2 to 2 miles, but 10 to 20 miles have been reported!

House flies breed in manure, spilled feed, and other moist, warm, decaying organic material. With each female producing up to six batches of 75 to 200 eggs at 3- to 4-day intervals, in cracks and crevices. Their life cycle from egg to adult housefly is between 10-45 days - the warmer the temperature, the quicker they mature. Average life span is 3-4 weeks but can live twice as long. Active when day temp is 80 to 90°F and inactive at night with temp below 45°F.

Integrated Pest Management of Flies: Defined as a pest management philosophy that utilizes all suitable techniques and methods to keep pest populations below economically injurious levels (below level threshold that bothers poultry, people and can transmit disease). These have to be socially acceptable, environmentally friendly, and economically affordable. Dr. Zebelo details in depth keeping pest population below the Economic Injury Level and the Economic Threshold.

Making pest control decisions, the best way to combat pests, starts with a standardized, quantitative method for monitoring fly numbers. The baited-jug trap, yellow sticky card, and spot cards are examples he describes (at minute 20 on the recording). He shows how to successfully monitor with sticky cards within poultry houses, where to hang them, and where to avoid hanging them. A common threshold is an average of 100 flies/card per week inside a poultry house. This threshold may be lowered or increased based on proximity to neighbors, potential transmission of pathogens by flies, time of year or cycle of birds and the costs of insecticides, etc.

Fly Management: Dr. Zebelo describes three levels, **Cultural, Biological Control, and Pesticides**.

To maintain levels below the Economic Threshold (of 100 house flies per yellow sticky card), Cultural Fly

Management consists of manure management, moisture control, sanitation, and introduction of Biological Control, useful arthropods that are helpful.

However, if pest density is about to reach the Economic Injury Level, Pesticides must be used, though this is a last resort. Further description of each starts at min. 29 of the recording. For example, a Biological Control showing mites that feed on up to 20 fly eggs and first larvae/day. He also shows how to trap good biological beetles. (See <https://extension.psu.edu/pest-management-recommendations-for-poultry>.)

For pesticide use, producers must monitor fly populations on a regular basis to evaluate and decide when insecticide applications are required. Improper timing and indiscriminate insecticide use, along with poor manure management, moisture control, and sanitation practices, will increase flies and the need for additional insecticide applications. If not using a proper integrated fly management program, fly pesticide resistance can occur along with several other unbeneficial issues, including higher costs of production.

What Pesticides Can We Use to Control Flies?: Insecticide applications may be classified by targeted fly stage or method of application. Dr. Zebelo referred us to: <http://www.kellysolutions.com/md/searchbypest.asp> an MDA site where you choose the pest and see what pesticide is recommended. The Delaware Dept. of Ag's Pesticide Management link is: <https://agriculture.delaware.gov/pesticide-management/>

In conclusion, Dr. Zebelo acknowledged that his research is funded by USDA and National Institute of Food and Agriculture, the CPPM-EIP Program and gave several references he used for his slides.

His contact information is: Dr. Simon Zebelo, sazebelo@umes.edu, 410-651-6163, University of Maryland Eastern Shore.

Question: Biological Controls, can you use in combination or pick just one? And is it a one-time purchase or do you have to re-introduce every couple of years? **Answer:** You can choose either of them or in combination to boost population of biological control. They can be used in broiler or layer houses. And he suggests re-introducing every so often to boost due to clean-out losses of biological controls.

Dr. Zebelo gave this site to purchase sustainable Biological Controls: <https://www.ipmlabs.com/ipm-labs-store/>

A viewer asked for recommendation on a backyard flock for biologicals. Dr. Zebelo said parasitoids, when you buy them, there is a recommendation table, ie., how many parasitoids for how many birds. (See PSU link above.)

Jenny Rhodes mentioned that she, Jennifer Timmons, and Jon Moyle will be working on Fact Sheets, putting all this information together. Dr. Zebelo will have a website devoted to this as well. When these comes out, we will promote them to all growers.

If you would like to see more on this, a question and answer session, or on different pests, please let us know!

This and previous Grower Lunch Break Recordings/Notes are located on our poultry website: <https://extension.umd.edu/resource/grower-lunch-breaks>

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