



Cockroaches: Increasing Threat to Pigs and People

Controlling Cockroaches in Confined Swine Units.

Introduction

Large swine operations need good management programs in place to prevent insect pests from becoming a biosecurity and health care problem. Many different fly species can be found in swine barns, including but not limited to house flies, dark-eyed fruit flies, and drain flies. These pests are easily seen. Populations can be observed during daytime hours when workers are more often present. However, one group of insects may be present in large populations and not as noticeable - cockroaches. German and Oriental cockroach species are increasingly infecting swine facilities – barns and offices. Cockroaches require moisture, warmth and food. Today's swine facilities offer suitable environments.

Cockroaches prefer to move around and feed in the dark. After dark is the best time to sample for infestations. Inspecting areas where they may hide, including wall voids, cracks, crevices, and inside hollow crate panels and pipes often reveals hundreds or thousands of adult cockroaches and immature nymphs. Overnight placement of sticky cards can be an effective tool for monitoring cockroach activity. If cockroaches are seen in a facility during the daytime, it indicates a significant population present. Control steps should be taken to address the health threat adult and nymph populations pose to pigs and people for several following reasons.

Cockroaches Pose a Threat to Pigs' Health by Breaking Biosecurity Plans

Swine Producers spend tremendous resources on implementing Biosecurity Plans. Research proves cockroaches act as both a reservoir and vector of disease, such as E. Coli¹, salmonella² and B. hyodysenteriae³. Unpublished work by Central shows German cockroaches tested PCR positive for PED virus. Gregarious by nature, cockroaches feed on a variety of foods, including feces, animal feed and other animal sources. Inter-group clean up, sanitation and biosecurity programs do not eliminate cockroaches between groups of pigs. Cockroaches survive these biosecurity measures and can have contact with the next group of pigs. Combined with their habits and close proximity to swine, cockroaches pose a threat to pigs' health, undermining comprehensive Biosecurity Plans.

Cockroaches Possible Health Threat to People/Employees; A Management Headache

Research indicates cockroaches and their habits may create an increased environment for allergens and result in increased allergic reactions and/or allergies and asthma in people⁴. In heavily infested barns, cockroaches can spread into offices, break rooms and showering areas, and across secure and non-secure areas. This breaks biosecurity and causes concern for employees/visitors/consultants coming into the facility. People fear "taking roaches home with them" in their clothes or footwear. This reduces people's interest in working in or visiting these facilities, a challenge for managers. Boots, coveralls etc. must be shaken out thoroughly to avoid putting on infested clothing. "Bagging" clothes in sealed plastic bags while working/visiting severely infested facilities is necessary to prevent leaving with cockroaches. Controlling/preventing cockroach infestations will improve swine working environments for employees and visitors/consultants.

Control and Prevent: The Goal of Central's Cockroach IPM Program

Implementing an effective IPM (Integrated Pest Management) program designed specifically for cockroaches should be a key component for all Swine Units as part of their Biosecurity Program. This should include inspecting for infestations, planning for the treatment program, implementation of the program, and evaluating the effectiveness of each treatment.

Central Life Sciences offers the following program which makes use of many different products, product forms and application methods to effectively combat cockroach infestations. This program uses adulticides (Lambda 9.7 CS (liquid concentrate) and Alluvium Cockroach Gel Bait) and insect growth regulators (Exhalt WDG Insect Growth Regulator - water dispersible granules) in a combination strategy to help achieve the goal of controlling the adults and helping prevent the immature nymph off-spring from becoming reproductive adults. Properly implemented, with good maintenance follow-up, Central's program helps prevent the immatures from becoming reproducing adults, with an eventual significant draw-down of the facility's cockroach infestation.

Farrowing Rooms:

Empty Farrowing Room:

Exhalt WDG Insect Growth Regulator plus Lambda 9.7 CS adulticide

Spray/fog empty room after sanitation step

Spray empty farrowing rooms initially two times in a row, then go on to Maintenance Program (below)

Occupied Farrowing Rooms:

Alluvium Cockroach Gel Bait application

Bait room with Alluvium Cockroach Gel Bait

Continue baiting with Alluvium each week until room rotates open and receives IGR + Adulticide treatment (above)

Maintenance Program:

Use "Empty farrowing Room" program above on empty rooms as they become available every two turns.

Break Room:

Spray Exhalt WDG Insect Growth Regulator plus Lambda 9.7 CS

Bait with Alluvium Cockroach Gel Bait

Non-farrowing areas: Gestation barns, finishers and nurseries

Spray Exhalt WDG Insect Growth Regulator plus Lambda 9.7 CS

Bait with Alluvium Cockroach Gel Bait

Always follow label directions for each product.

Visit www.starbarproducts.com for more information on each of these products and other products that can be used in an Integrated Pest Management Program.

1. Ludek Zurek, Coby Schal. Evaluation of the German cockroach (*Blattella germanica*) as a vector for verotoxigenic *Escherichia coli* F18 in confined swine production. *Veterinary Microbiology Volume 101, Issue 4, 6 August 2004, Pages 263-267*

2. Matthew Turner, Vincent Peta, Jose E. Pietri. New insight into the relationship between *Salmonella* Typhimurium and the German cockroach suggests active mechanisms of vector-borne transmission. *Research in Microbiology Volume 173, Issue 3, March–April 2022, 103920*

3. R Blunt, K Mellits, E Corona-Barrera, P Pradal-Roa, S McOrist. Carriage of *Brachyspira hyodysenteriae* on common insect vectors. *Vet Microbiol. 2022 Jun;269:109417.*

4. Danh C. Do, Yilin Zhao, and Peisong Gao. Cockroach Allergen Exposure and Risk of Asthma. *Allergy. 2016 Apr; 71(4): 463–474.*