



Practical Biosecurity Programs
Standard Biosecurity Protocol (SBP)
SBP 19

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Pest Control: Other Insects

1. **Purpose:** To prevent disease transmission by other insects
2. **Responsibility:** Farm Staff
3. **Frequency:** Ongoing
4. **Biosecurity Protocols**
 - 4.1 There are two types of other insects that producers in our region are concerned with; Darkling Beetle (in swine and poultry) and Ectoparasites like lice and mites
 - 4.2 These other insects can be disease carriers that introduce disease organisms to a facility, spread the disease and can carry over the pathogens to the next production cycle if not treated properly
 - 4.3 **Darkling Beetles**
 - 4.3.1 Darkling beetles can be introduced to a farm site in the beetle form by flying from an adjacent farm site or brought onto the farm site in vehicles, equipment, etc.
 - 4.3.2 The larvae stage of the beetle, lesser meal worm, can be introduced to the farm site in feeds where contamination has occurred at another site
 - 4.3.3 The Darkling beetle and larvae prefer a warm environment and feast on feed, litter and other organic material
 - 4.3.4 Poultry and hog barns provide an ideal situation for these bugs and if left unchecked can literally eat you out of house and home
 - 4.3.5 Darkling beetle infestations can be so bad that they cover litter/floors, walls partitions, etc. giving a black moving mass look
 - 4.3.6 Preventing Darkling beetles from establishing in a facility, relates to keeping the facility closed up and in good repair, doors that seal tightly, no open sides to the barn and no holes for entry
 - 4.3.7 Inside the barn the walls, floors, ceiling, partitions, etc. must be kept in good repair
 - 4.3.8 There should be no cracks or holes for the darkling beetle to crawl into

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Picture 19.1, Biosecurity Workshop, 2005



Picture 19.2, Oderkirk, 2007

4.3.9 Darkling beetles, if left to get into wall or ceilings, will literally destroy the insulations effectiveness due to their burrowing behavior

4.3.10As long as animals are in the pen, the beetles are quite comfortable. Once the animals are removed, the barn will begin to cool and the Darkling beetles will seek shelter in cracks in the walls and floors

4.3.11If left untreated, the beetles will survive in these areas and reappear to infest the next flock/herd when the barn is heated again

4.3.12Clean-up feed spills immediately to reduce available food in the pen

4.3.13Keep the feed hoppers covered to reduce opportunities for the beetles to get into the feed

4.3.14 Treatment

- i. Birds/animals are removed from the barn
- ii. Once birds/animals are shipped, pull litter 1-2 feet away from the interior pen walls
- iii. Put down pesticide powder in this cleared area by the wall. The beetles, as they seek the shelter of cracks in the wall, will walk over this pesticide
- iv. Clean-out the barn and remove the manure/litter out of the CAZ and away from the farm site as this material will be infested with Darkling beetles
- v. Wash the barn to remove the rest of the organic material and close up the barn
- vi. Turning the heat back on will warm up the barn and make it comfortable enough for the Darkling Beetles to come out of the cracks and holes into the pen
- vii. Once beetles are out, spray with an appropriate pesticide as described in **SBP 5: Pesticides for Biosecurity Purposes** and record use on the **SBF 5: Disinfectant, Pesticide & Herbicide Use Chart**

- viii. Clean up beetles and dispose of with other organic material and the barn is now ready for disinfection
- ix. Monitor the barn and litter in each flock and record observations on Darkling Beetles in **SBF 6: Pest Control Chart**

4.4 Lice and Mites in Poultry

- 4.4.1 Lice and mites are blood sucking parasites and are stressors to poultry
- 4.4.2 Lice and mites arrive on a farm site through birds, rodents, vehicles, equipment and other poultry
- 4.4.3 Lice and the Northern Fowl Mites live on birds and the Red mite crawls onto birds for feeding and will leave the bird and live in the barns environment and equipment
- 4.4.4 Lice and the Northern Fowl Mite can live off the host for a short time which leaves opportunity to survive after a flock of birds has been shipped until the new flock of birds arrive
- 4.4.5 Infestation takes time to manifest itself as these parasites will spread from bird to bird throughout the barn
- 4.4.6 Lice can be found by inspecting the birds and looking under the wing and around the vent area. Northern Fowl Mite can be observed by checking the vent area and the feathers below the vent where they lay their eggs in the feather webbing
- 4.4.7 Red mites, though small, are easy to see by their red color. Lice and Northern Fowl Mites are flesh colored and only are seen in a dark color after they have had a blood meal
- 4.4.8 **Treatment**
 - i. Once found in a flock, the whole flock needs to be treated with a proper pesticide as described in **SBP 5: Pesticides for Biosecurity Purposes** and record use on the **SBF 5: Disinfectant, Pesticide & Herbicide Use Chart**
 - ii. Caged birds can be treated with a powder which will remain on the bird for an extended period. Dust sprayers are available to do this without having to remove the bird from the cage. Ensure all birds get powdered
 - iii. Wettable sprays can be used, and are probably the easiest to use. Ensure all birds get sprayed. In cages, birds turn toward the back of the cage allowing the spray to cover the vent area and feathers at the back of the bird
 - iv. If the flock is in a floor pen, wettable spray can be used, realizing the coverage will not be as effective as the individual birds receiving spray in cages
 - v. Nest boxes should also be sprayed or powdered if litter is used in the nest box
 - vi. Powder could be used on floor birds but the bird would need to be handled to properly treat

- vii. As the life cycle of these parasites is short, repeat the treatment in 7-10 days, which allows for treatment of parasites that have hatched out in the mean time
- viii. Continue to monitor the flock for the parasite until the flock is shipped and record observations on a **SBF 6: Pest Control Chart**. If more parasites are found, repeat the treatment
- ix. After the flock is shipped and barn cleaned and washed, use a stronger pesticide in the pen and on the equipment to destroy any residual parasites left in the pen
- x. Record pesticide used in a **SBF 5: Disinfectant, Pesticide & Herbicide Use Chart**

4.5 Lice, Mites, Fleas and Ticks in Other Livestock

- 4.5.1 Lice, mites, fleas and ticks are blood sucking parasites and are stressors to livestock
- 4.5.2 Lice, mites and fleas arrive on a farm site through birds, pets, rodents, vehicles, equipment and other livestock
- 4.5.3 Ticks are especially a concern for pastured livestock.
- 4.5.4 Lice, mites and fleas live on animals and some mite species crawls onto animals for feeding and will leave the animal to live in the barns environment and equipment
- 4.5.5 Lice and the mites can live off the host for a short time which leaves opportunity to survive after the animals have been moved or shipped until the new flock or herd arrives
- 4.5.6 Infestation takes time to manifest itself as these parasites will spread from animal to animal throughout the barn
- 4.5.7 Lice are more problematic in winter months. They can be found by parting the hair and looking for eggs, especially in the neck, withers, shoulder, mid-back and tail-head areas. A typical sign of lice infestation is rubbing against fence posts, water troughs or other objects due to irritation.
- 4.5.8 **Treatment**
 - i. Once found in a herd/flock, the whole herd/flock needs to be treated with a proper pesticide as described in **SBP 5: Pesticides for Biosecurity Purposes** and record use on the **SBF 5: Disinfectant, Pesticide & Herbicide Use Chart**
 - ii. Treatment options include dip, spray-on, pour-on, spot-on, injectable, dust, and back rubbers. Check with a veterinarian for appropriate products and application instructions. Ensure all animals get treated.
 - iii. Nest boxes and bedding areas should also be sprayed or powdered to prevent re-infection from the bedding.
 - iv. Ticks are serious vectors of human and animal disease agents, transmitting numerous protozoan, viral, bacterial and fungal pathogens. Prevention is the best management tool to reduce the impact of ticks.

- v. As the life cycle of these insect parasites is short, repeat the treatment as per product instructions, which allows for treatment of parasites that have hatched out in the mean time
- vi. Continue to monitor the herd/flock for the parasite until the herd/flock is shipped and record observations on a **SBF 6: Pest Control Chart**. If more parasites are found, repeat the treatment
- vii. After the animals are shipped or moved, and pens or barn is cleaned and washed, use a stronger pesticide in the pen and on the equipment to destroy any residual parasites left in the pen
- viii. Record pesticide used in a **SBF 5: Disinfectant, Pesticide & Herbicide Use Chart**

5. **Biosecurity Deviation Protocols**

- 5.1 If there are other barns on the farm site, the poultry in those barns must be checked regularly to ensure that the Darkling Beetle or parasite infestation has not spread. If Darkling Beetles or parasites are found in the other barns, treat as per the protocols in this SBP

6. **Biosecurity Records**

- SBF 5: Disinfectant, Pesticide & Herbicide Use Chart
- SBF 6: Pest Control Chart