The Best Management Practices of Integrated Mosquito Management

GMCA 2018

Elmer W. Gray

Department of Entomology

Overview of the BMP Concept

- Loads of information available….AMCA, Richmond Co., CDC, GDPH
- Category 41, Mosquito Biology, Surveillance and Control Manual
- One day I get a call from Jennifer Berry
- Information for the beekeeping community about our approach to mosquito control
- Really made me think about how we want to be perceived……
- Didn’t change anything from what we’ve been proposing for many years

Integrated Pest Management (IPM)

- National Academy of Sciences, 1969 – an ecological approach in which all available necessary techniques are consolidated into a unified program, so that populations can be managed in such a manner that economic damage is avoided and adverse side effects are minimized.

Best Management Practices of Integrated Mosquito Management

- Based on what was used in the Category 41, Mosquito Biology, Surveillance and Control manual
  - Education/Communication
  - Surveillance
  - Source Reduction
  - Larviciding
  - Adulticiding

Education/Communication

- Wide range of topics
- Essential that the public understands how to reduce mosquito populations on their own property
- Equally important that we have trained personnel to conduct community-wide operations and represent their program professionally
- Educate government representatives and leaders
- Education should occur at all levels (youth, teens, adults, public and private organizations), must be comprehensive, pervasive, persuasive and persistent!

Surveillance

- Essential to an IPM-based approach
- Must know what species is causing the problem
  - Reverts back to the original IPM definition and using the ecology of the pest to help target our efforts
- Allows us to focus our resources
- Wide variety of surveillance techniques, but any is better than none
- Mapping is a critical aspect, as problem areas are often consistent across seasons

Source Reduction

- The most effective and efficient intervention
- Permanent!
- “Tip and Toss” programs are extremely important to help people help themselves
- Community Cleanup Programs
- Public Works component – maintain drainage
- Builds upon the education aspect and the ecology of the pest being targeted

Larviciding

- When larvae are present and the water can't be removed, can be labor intensive
- Preferred method due to the confined nature of the target pests
- Many Insect Growth Regulators and biologically based larvicides approved by the EPA
  - Methoprene
  - *Bacillus thuringiensis* subsp. *israelensis*
  - Bacillus sphaericus
  - Spinosad
  - Surface film agents

Adulticiding

- An essential final option of any IMM program
- Should have some type of action threshold
  - Trap counts
  - Landing rates
- Pollinator protection should be a priority for all parties
- Calibration and label information critical
- Typically Ultra Low Volume (ULV) applications conducted either aerially or via ground
- Comprehensive list of larvicides and adulticides in the Georgia Pest Management Handbook

Summary

The Best Management Practices of Integrated Mosquito Management provide a framework to conduct mosquito suppression activities in a step-wise manner based on the desires of the local populace and the resources available.

“Sensible Suppression”

- Identify the pest species, map complaints
- Educate workers and the public as to where the pests are developing and what we can do to minimize their populations
- Eliminate larval habitats to the best of our ability
- Treat larval habitats that cannot be eliminated and are producing the pest species with an EPA approved larvicide
- Map larval habitats for future reference
- Adulticide if needed using a treatment threshold to trigger applications and taking all possible precautions to minimize pollinator exposure
- Continue monitoring larval and adult populations