## Overview Table 1. Adulticide Decision Parameters

| Type of Parameter | | Factor for Vector Control Applications? | Factor for Applications under Health Emergency? | Criteria | Comment |
|---|---|---|---|---|---|
| Basic Surveillance Parameters | Number of mosquitoes | Yes | No | Counts in light traps significantly above norm; landing rates; complaints | Not a fixed value; somewhat species specific; ~ 25 per NJ trap, ~ 100 per CDC trap; landing rate 5+/min.; complaints invaluable where traps are not set; intend to set CDC traps before all non-Fire Island applications |
| | Species present | Yes | Yes | Light trap content analysis | Information on basic mosquito biology essential: Vector Control targets aggressive biters; Health Emergency targets specific (bridge) vectors; ; intend to set CDC traps before all non-Fire Island applications |
| | Complaints | Yes | Yes | Number/location of calls | Evaluate in historic context; complaints must be supported with appropriate surveillance data; complaints document extent of problem better than traps can |
| | Historical population trends | Yes | No | Surveillance data records | Data patterns often signal that problem is about to abate, or is likely to worsen |
| Species Specific Parameters | Aggressiveness of target species | Yes | Yes | Documented biting patterns of trapped mosquitoes | Aggressive biters indicate greater problem, increased likelihood for bridge vector participation |
| | Activity patterns of target species | Yes | Yes | Documented host seeking patterns, flight ranges of trapped mosquitoes | Guides actual control decision; e.g., evening vs. later at night; day-time flying may inhibit control; spot treatments only effective for short flight range species; large flight ranges require applications to cover larger, continuous areas to be effective |
| | Vector Potential | No | Yes | Infection rate, vector competence, % mammalian meals of trapped species | Establishes relative risk for species present |
| | CDC Vector Index | No | Maybe | MIR, trap counts for all potential vectors | CDC light trap counts * MIR, summed over all vector species; higher index correlates to more human infections following week; requires high mosquito/human infection rates for use; can use only with multiple trap data sets |
| Species specific parameters, continued | Parity rates | Sometimes | Yes | Age (blood meal history) of biting population | For Health Emergency, high parity rates indicate majority of biters had prior blood meal – direct indication of increased Vector Potential; for Vector Control, an aging population, even if smaller, will be treated since it represents increasing vector potential |
| | Life Cycle Type | Yes | Yes | Trap analysis | Brooded mosquitoes eventually die off on own, continuous breeders build populations over season |
| Public Health Parameters | Bird testing | No | Yes | Presence/absence of virus | Provides early warning in terms of bird to bird transmission; documents active disease foci in County |
| | CDC mosquito pool testing | No | Yes | Presence/absence of virus | Amplification vectors provide early warning, document active disease foci in County; bridge vectors indicate virus present in human biting species, is signal that human health risk is imminent |
| | Veterinarian reports | No | Yes | Ill/dead target animals | Non-mammals provide early warning, document active disease foci in County; mammalian cases indicate virus present in bridge vectors, signal that human health risk is imminent |
| | Physician reports | No | Yes | Human cases | Realized human health threat |
| | Disease history | No | Yes | Number of human/ important animal cases in prior years | Indicates that local conditions are favorable for pathogen amplification and transmission |
| | Avian dispersal/migration patterns | No | Yes | Time of year regarding dispersal of hatch year birds and known migration periods | Identifies new areas for concern, signals need to control known bridge vectors |
| Climatic Parameters | Current weather | Yes | Yes | Temp = 65+<br>Wind < 10 mph<br>No rain | Application time decision |
| | Short-term weather forecast | Yes | Yes | Presence of fronts & storms; barometric patterns | Application planning |
| | Time of year | Yes | Yes | Spring, Summer, & Fall activity patterns for trapped mosquitoes | Species-specific behavior; generally, cooler weather retards activity, warmer weather increases activity; virus presence not as significant when activity decreases |
| Ecological Parameters | Environmental factors in target area | Yes | No | Environmentally sensitive settings (R-T-E species) | Prior mapping is essential to clearly identify all environmentally sensitive areas; usually addressed through NYSDEC; Town and other expert cooperation is sought |
| | Population | Yes | Maybe | Number of impacted people/population density | For Vector Control: no people means no problem; for Health Emergency, threat may be sufficient |
| | Application restrictions | Yes | In some settings | Farms; no-spray list; NYSDEC wetlands, wetlands buffers; open water buffers; FINS | Vector Control no-spray areas include crop areas, no-spray list, buffers – discontinuities may make application ineffective; FINS Health Emergency criteria are more stringent than County criteria |