

## Mosquito Misting Protocol

### Introduction

Mosquito misting systems are used to reduce the number of biting mosquitoes and nuisance pest in residential backyards and public commercial locations. Companies install and maintain automatic misting systems to provide a needed service and fill a unique niche in the market place. The purpose of this protocol is to give the mosquito control professional tips on, mosquito behavior, proper inspection, installation, and maintenance of equipment and proper use of MGK misting products.

### Understanding Mosquito Habits and Life Cycle

- Mosquitoes have 4 life stages: → eggs → larvae → pupae → adults
- Mosquitoes are most active at dawn and dusk.
- They can feed on multiple hosts including but not limited to humans and pets.
- Females lay their eggs in water which hatch in 1 to 3 days. The emerging larvae will go through 4 molts which can last for 7 days to several weeks.
- The pupal stage (or tumbler stage) takes 2 to 4 days but can take up to a few weeks. During the 4<sup>th</sup> molt, the pupal skin splits and the adult emerges.
- Adult females require a blood meal to produce eggs while males feed on plant nectar.
- Females live 1 to 2 months during warm weather months and as long as 6 months as they overwinter. Males live for 6 to 7 days.

### Inspection

- Inspect the property for harborage and breeding areas (shaded areas, heavy foliage) and remove all standing water and other conducive breeding conditions.
- Determine the size of the treatment area (> or < 1 acre) and provide the homeowner with appropriate documentation if necessary.
- Determine if or how installation of the misting system could affect neighboring homes, lakes, ponds or any active waterways.

### Installation Planning

- The systems are most effective if the nozzle circuit is installed as a “perimeter of protection” around the treatment area. If the treatment area is very large, run nozzle lines into the interior of the area.
- As a general rule, nozzles should be installed about ten feet apart along the perimeter. If the mosquito problem is severe or if the landscaping or canopy is exceptionally lush, place the nozzles eight feet apart.
- The most common nozzle installation surfaces are fences, handrails, trees, house eaves and landscape risers.
- To avoid off-property drift, utilize risers in landscaping beds when possible. For fence and tree nozzles, limit the installation height to 4’ – 6’ above ground level. Do not exceed 10’ in height when installing nozzles on house eaves.
- Use conduit to protect nozzle circuit tubing from line cuts where it is exposed and low to the ground.

- Site the misting unit in an area that offers a flat surface, has easy access to power and water, is accessible for replenishment and maintenance and is protected from roof runoff and spray from irrigation heads.
- Avoid placing nozzles on or close to koi ponds, swing sets or jungle gyms.

### Setting The Right Expectations

- Listen carefully to the customer and communicate treatment plan and expectations including cutting the grass, trimming excessive vegetation, and removing all standing water.
- Communicate the importance of using misting systems only when people and pets are not present.
- Explain that mosquito treatments can be affected by excessive moisture such as rain or sprinkler systems.
- All pet belongings, toys and other items must be removed from the yard prior to application.
- A study conducted by Dr. Celik showed a significant decrease in mosquito populations where misting systems were used. Many PMPs report an average mosquito reduction around 75 to 80%.
- Communicate the degree of control will vary depending on the ability to limit or remove conducive breeding and harborage sites

### Product Use:

- **Always use to appropriate amount of insecticide to achieve maximum protection.**

Gallon Drums	Fluid ounce to add of Sector to achieve a ( 1:1 or 0.09% ) & Riptide to achieve a (1:5 or 0.046%)	Fluid ounce to add of Vampyre to achieve a (1:10 or 0.55%)
30	35	70
55	64	128
125	145	291
225	261	523

- Test your water to ensure the pH of the misting solution is in the 5.5 to 7.0 range. If the solution is outside that pH range, pyrethrum will degrade, and performance will be reduced.
- Be sure to clean the tank between refills, or use an anti-microbial to prevent the development of bacteria or other natural organisms that will break down the pyrethrum. Do not use compounds which could alter the solution pH out of the 5.5 to 7.0 range. If buildup is observed in the tank, empty it completely and be sure to clean it thoroughly before refilling.
- Make sure that a waterproof envelope with the product label is securely attached to the outside of the residential misting tank.

## Equipment Maintenance

- Drum Units
  - With each refill:
    - 1) remove any debris that has collected on the drum lid
    - 2) clean filter on pump intake line
  - Winterization:
    - 1) Flush pump (and agitation valve if equipped) with clean water
    - 2) drain water from internal system tubing
    - 3) unplug unit
    - 4) Replace waterproof cover.
- Tankless Units
  - With each refill: no routine maintenance required
  - Winterization
    - 1) Flush insecticide concentrate sub-system with clean water
    - 2) Flush batch tank, pump and agitation valve with clean water
    - 3) Evacuate remaining fluid from system's internal tubing
    - 4) Unplug unit
- Nozzle Circuit
  - Winterization
    - 1) Flush with clean water
    - 2) evacuate water with compressed air

## Common Issues

- Pump failure is usually caused by a clogged filter on the pump intake. Clean the intake filter with every fill of insecticide.
- Leaks and siphons in the nozzle circuit are usually caused by damage to tubing during landscape maintenance. Protect exposed tubing with conduit. If possible, use misting units that are equipped with an anti-siphon device and leak detection. Plant burn, or phytotoxicity is caused by persistent direct exposure to the mist. To avoid or minimize plant burn, place nozzles at least 2' from plants.
- Foul smells and scum are caused by biologic activity in the reservoir and are often due to a contaminated water source. If possible, treat water source to prevent seeding the tank with bacterial matter.
- To prevent bacterial growth activity, routinely flush and clean tanks and equipment.
- Avoid chemical staining by placing nozzles several feet away from pale surfaces or surfaces that would be difficult to clean (e.g. stone, stucco or wood).

### **Additional treatments**

- Consider all choices for IMP control of mosquitoes including non-chemical options.
- Drain all items holding water such as flower pots, tree tires, small swimming pools, bird baths etc..
- Treat all harborage areas including shaded areas, foliage, shrubs, and areas with little air movement (soffits and entry ways) with NyGuard<sup>®</sup> IGR to help break the mosquito life cycle.
- For breeding sites (stagnant or standing water) that cannot be adequately drained or removed, apply a solution as a coarse, wetting spray using only NyGuard.
- Do not apply NyGuard to natural bodies of water or active waterways.

### **Clean-up tips**

- Remember to cover all surfaces people might contact.
- If items are exposed to misting products, clean them with warm soapy water. After the items have been cleaned and dried, they may be used.
- Always be aware of product re-entry intervals. Once surfaces are dry, people and pets are permitted in treated areas.
- Staining of a structure is usually the result of improper installation. Jomax or Goo be gone are sometimes used to remove misting stains. Always follow product labels. Test small inconspicuous areas before applying any product to a structure to remove stains.

### **Post-Treatment**

- Periodically inspect all components to ensure the misting system is functioning at full capacity and are still covering harborage sites. This may be done on a monthly or quarterly basis.

Note: All equipment information provided by Jim Jackson, Owner, MistAway Systems. For detailed equipment installation information contact your local equipment manufacturer.