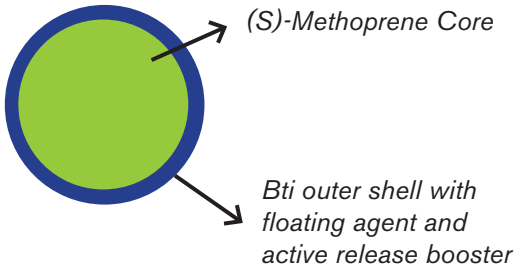
DEVELOPING A NEW DOUBLE-ACTION LARVICIDE

Duplex™-G combines a bio-rational control agent and a biological control agent in a solid form.

(S)-Methoprene, the bio-rational control agent, is an insect growth regulator (IGR) that interrupts the normal development of mosquito larvae without impacting non-target mammals, waterfowl, fish, or beneficial predatory insects.

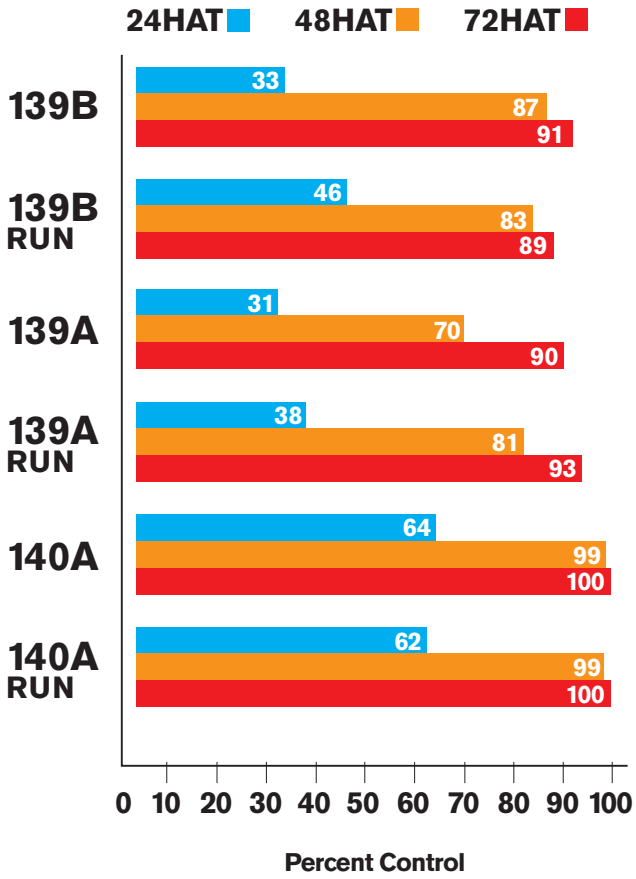
***Bacillus thuringiensis subspecies israelensis (Bti)* Strain BMP144**, the biological control agent, is a feeding toxin to mosquito larvae without environmental impacts. Both control agents are broken down by the environment over a short time, which prevents the bioaccumulation of active ingredients in the environment.

Granule Design



Duplex™-G Outer Shell Improvement Scale Up

Run = Sample was run through backpack applicator



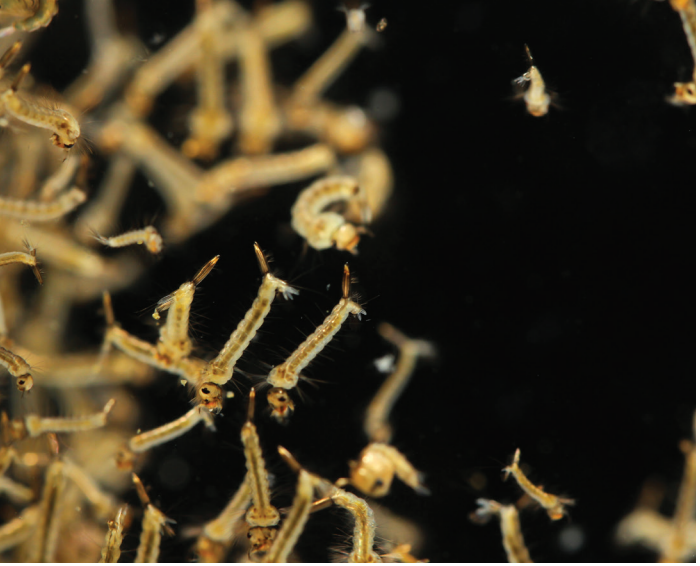
To learn more about the Central Life Sciences portfolio of mosquito control products, visit **CentralMosquitoControl.com**

CENTRAL Life Sciences®

DUPLEX™-G DEVELOPMENT SUMMARY

CREATING LARVICIDAL SOLUTIONS

CENTRAL Life Sciences®



KEY DESIGN DEVELOPMENTS

1. **Quick Kill:** Dead larvae within 24-72 hours
2. **Long Residual:** Larvae control up to 28 days with continuous flooding
3. **Consistent Granular Size:** Calibration ease and normalized swath characterization for ground and aerial application equipment
4. **Heavy Granule:** High bulk density allows for habitat penetration and no-drift applications, on-target delivery to mosquito breeding habitats
5. **Pre-Flood Treatments:** Mosquito breeding habitats can be treated before water inundation from planned irrigation, snowmelt and rain fall

ACTIVE INGREDIENTS

- 5.35% *Bacillus thuringiensis subspecies isrealensis (Bti)* Strain BMP 144 solids
- 1.6% (S)-Methoprene

DUPLEX™-G TECHNOLOGY COMPONENTS

(S)-Methoprene Core:
This is designed to increase residual effectiveness by controlling (S)-methoprene release over a 28-day period when continually flooded. In situations where occasional flooding predominates, the methoprene core stops releasing when the habitat dries and resumes releasing as the habitat re-floods. Control release technology has been optimized along with stability enhancements.

Bacillus thuringiensis subspecies israelensis (Bti):
The outer shell contains layers of *Bti* mixed with a floating agent, a release agent, and an application protectant. The key components of this layer are the floating agent and release agent. The release agent will only deliver *Bti* to the water column when flooded; this ability allows for the pre-treatment of habitats prior to flooding. The release agent is referred to as "Active Booster Release Technology," water activates the release mechanisms that cause the separation of *Bti* and the floating agent from the (S)-methoprene core. Once the *Bti* and floating agent reach the water surface, the water's surface tension begins to separate the floating agent and *Bti*, causing the *Bti* to be bioavailable to mosquito larvae.

Floating agent and Bti released to the top of the mosquito habitat by "Active Booster Release Technology"

THE DUPLEX ADVANTAGE

Features and Benefits:

1. Provides a quick kill with long residual
2. Controls all species of mosquito larvae
3. Helps with resistance management, as the two modes of action in a single product eliminate the need for product rotation
4. Beneficial when (S)-methoprene is the secondary control agent; when larvae development times may be shortened or prolonged by environmental conditions that hamper *Bti* control.
5. Helps with quality control checks, as the quick *Bti* kill allows application checks, without the need to wait for pupation.
6. "Active Booster Release Technology" allows pre-treat with *Bti* without misfires from humidity
7. Offers a 15-day pretreatment ability in dry habitats
8. "Active Booster Release Technology" quickly releases *Bti* to the "kill zone"
9. High bulk density allows for excellent foliage penetration
10. Uniform granule size ensures consistent product application through both ground and aerial equipment
11. Wide application range; 2.5 – 20 lbs. per acre
12. No bioaccumulation of active ingredients
13. *Bti* kills 1st through early 4th instar mosquito larvae within 72 hours
14. (S)-Methoprene disrupts adult mosquito development when applied prior or up to the late 4th instar stage of mosquito larvae
15. Offers a consistent flow through application equipment (see chart on back cover for details)