

NATULAR® G30

A multi-brood, extended-release granule larvicide delivering up to 30 days of control with unprecedented operational flexibility.

Natular G30 is the multi-brood, extended-release granule formulation in the Natular larvicide portfolio, developed and manufactured exclusively by Clarke. Natular G30's granules release effective levels of Qalcova® brand Spinosad for up to 30 days to control midge and mosquito larvae in all four feeding instar stages.



THE NATULAR LARVICIDE PORTFOLIO >>

Natular is in a chemical class different from all other larvicides and has a unique mode of action with a patented ingredient, Qalcova brand Spinosad, that is derived from a naturally occurring soil bacterium. As the only IRAC Class 5 chemistry for public health use, Natular products help fight resistance and control larvae of mosquitoes that may transmit Dengue, Chikungunya, Zika, Malaria, and West Nile Virus, including Aedes, Anopheles and Culex.

- » **Reduced Risk active ingredient** as designated by the US EPA, meaning it has reduced risk to human health and the environment when compared to other available alternatives
- » **US EPA Presidential Green Chemistry Challenge Award** winning active ingredient
- » **Unique mode of action** and a **novel class of chemistry**, providing highly efficacious larval control and a rotational option for insecticide resistance management
- » **Organic Materials Review Institute (OMRI) Listed®** for use in and around organic agriculture and gardens
- » **World Health Organization Pre-Qualification Program Listed (WHO PQ Listed)** for vector control

PROACTIVE, PROVEN EFFICACY IN CHANGING CONDITIONS

Natular G30 is designed for pre-hatch applications in areas that are subject to high tides and occasional flooding that increases mosquito breeding grounds. When applied up to six weeks prior to flooding, its granules will activate upon contact with water, effectively controlling mosquito breeding for up to 30 days. Field studies have shown that these granules can also reactivate during dry-down and rewetting phases to maintain larval control.

FLEXIBLE TREATMENT OPTIONS AND DIVERSE APPLICATIONS

Natular G30 provides versatile treatment options for various larval habitats. It can be applied using methods such as manual, ground, aerial, or even drone application. The following types of larval habitats are treatable:

- » Permanent or temporary standing water areas
- » Open or dense vegetation habitats
- » Fresh or brackish waters
- » Cold or warm water conditions
- » Waters with high or low organic content and pollution

Additionally, Natular G30 is an OMRI Listed® larvicide, meeting USDA National Organic Program standards for use in and around organic agriculture and gardens.

ENVIRONMENTALLY-FRIENDLY

As an OMRI Listed®, US EPA Reduced Risk larvicide offering a unique mode of action, Natular G30 sets the standard for efficacy, environmental stewardship, and resistance management. Its active ingredient, Spinosad, is of low acute and chronic toxicity to a wide range of non-target species and degrades rapidly in both soil and water.

HOW TO APPLY NATULAR G30 AND PRODUCT SPECIFICATIONS

Natular G30's granular formulation lends itself to application by hand, ground, air, and drone, and may be applied at rates from 5 to 20 pounds per acre (5.6 to 22.4 kilograms per hectare) in waters where mosquitos breed. Natular G30 may be applied every 30 days for extended control in continuously flooded habitats. *(Please refer to the product label for specific application guidance and specific treatment sites and always ensure application equipment is properly calibrated for use.)*

- » Sand core, plaster coated granule containing 2.5% Qalcova brand Spinosad
- » Bulk density of 85 lbs/cu. Feet
- » Sold for public health use in 40lb bags or 10kg bags internationally, 1000 lb supersacks, or 1600 lb totes
- » Minimal PPE requirements (safety glasses) for handlers and applicators



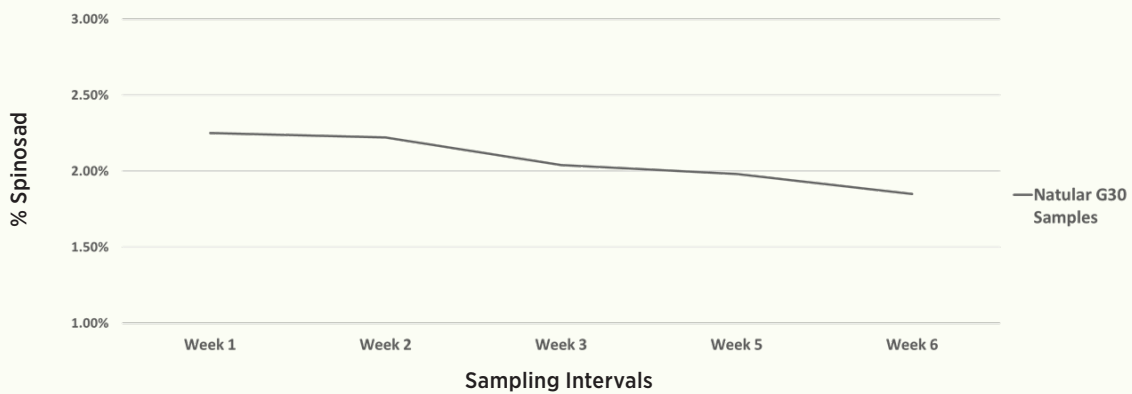
Natular G30 for Larval Pretreatment

The Cayman Islands Mosquito Research & Control Unit experiences unpredictable rainy seasons, complicating larviciding efforts. To address this, the MRCU explored options for larval products that could serve as effective pretreatments to keep mosquito egg banks low during periods when active treatments are not feasible.

Natular G30 emerged as a promising candidate due to its pretreatment labeling and extended control duration, but it needed to be determined whether the product could be applied four to six weeks ahead of the typical rainy season and still maintain effective control once flooding occurred.

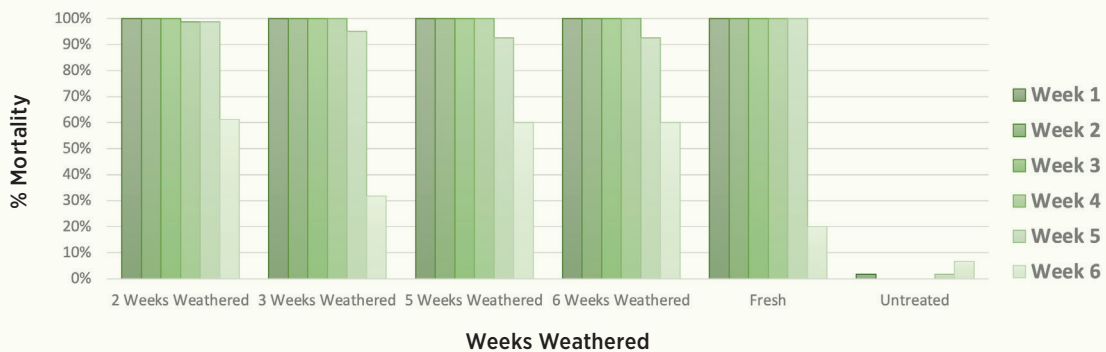
Collaborating with the MRCU, Clarke took this challenge on as an extension of our commitment to product stewardship. Clarke labs assessed the spinosad content in weathered Natular granules and their ability to control mosquito larvae. Fresh Natular G30 granules contained 2.5% spinosad, and even after six weeks of weathering, samples weathered in a typical treatment site retained levels near 2% spinosad. Bioassays demonstrated excellent mortality rates for up to six weeks of environmental exposure, regardless of exposure length.

Spinosad (a.i.) Quantification



Quantification of the percentage of Natular G30's active ingredient, Spinosad, present in granule samples taken after exposure to real-world operating conditions.

Natular G30 Bioassays



Mortality of larvae compared across samples exposed to weathered and fresh Natular G30 granules, as well as untreated larvae.

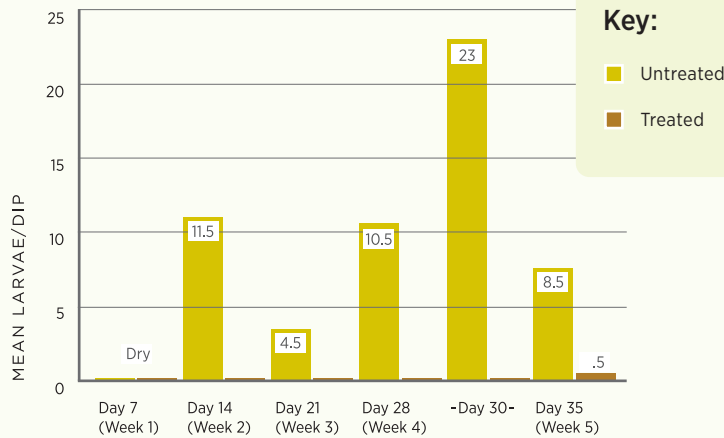
Natular G30 Efficacy Data

Natular G30

Habitat: Retention Ponds/Ae. vexans-Cx. pipiens

Rate: 10 lb/ac (<Mid)

Location: Illinois, 2008



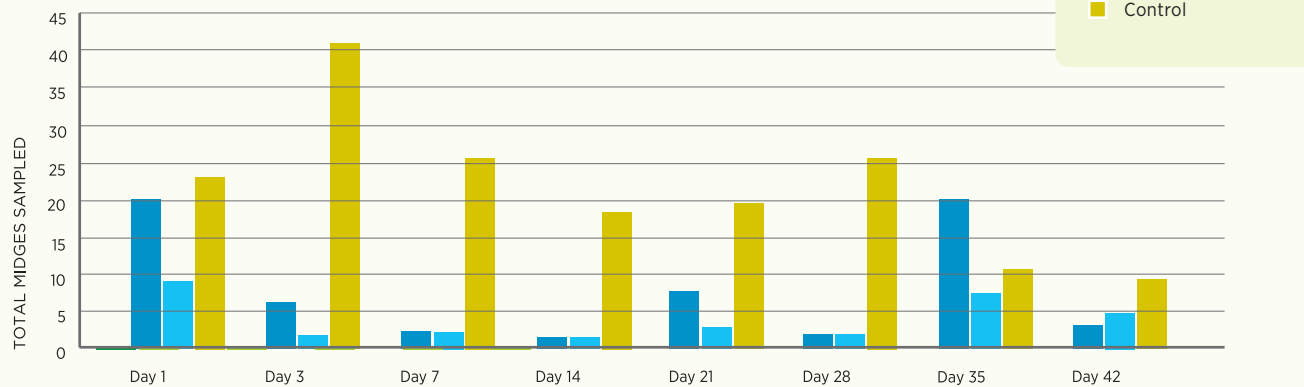
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Habitat: Sample from Benthic Soils, Lake Monroe

Rate: 12 lb/Acre and 12.5 lb/Acre

Location: Lake Monroe Florida, Volusia County, 2010

Species: Non-Biting Midge: *Glyptotendipes paripes* and *Chironomus crassicaudatus*



*Data provided by Edward D. Northey, Environmental Specialist, Volusia County MC, FL



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