

CLARIFLY® LARVICIDE FOR SWINE TECHNICAL INFORMATION



→ FLY CONTROL FOR SWINE OPERATIONS

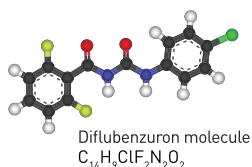
ClariFly® Larvicide is a feed supplement that prevents house and stable flies from developing in and emerging from the manure of treated swine. Unlike conventional insecticides that attack the nervous system of insects, ClariFly® Larvicide works by interrupting the fly's life cycle, rather than through direct toxicity. When mixed into livestock feed, ClariFly® Larvicide passes through the digestive system and into the manure. With only very small concentrations, it is able to disrupt the normal molting process of the fly larvae. The mode of action is specific to insects. It disrupts the production of a substance called chitin, which is a key component of an insect's exoskeleton that is NOT found in mammals. Without a properly formed exoskeleton, the immature fly cannot survive to adulthood.

NOT A CONVENTIONAL PESTICIDE

The active ingredient in ClariFly® Larvicide, diflubenzuron, is considered by the Environmental Protection Agency (EPA) to pose a low risk to human health and the environment. Diflubenzuron has the following advantages over existing conventional pesticides:

- Low impact on human health
- Lower toxicity to non-target organisms (birds, fish, plants)
- Low potential for groundwater contamination
- Low use rates
- Compatibility with Integrated Pest Management (IPM) practices, ClariFly® Larvicide is able to exert its effect with little risk to human health and the environment and is therefore an ideal fly control choice for today's environmentally conscious producer.

→ CHEMICAL CHARACTERISTICS



Diflubenzuron is a benzoylurea chitin inhibitor.
Chemical Class benzoylphenylurea.

METABOLISM IN SWINE

Monogastric animals, such as swine, digest their feed through a different process than ruminant animals, such as cattle. Unlike ruminants, whose feed is digested through four different stomach compartments, swine possess a single stomach, making their digestive process more simple and direct. This difference affects the dose of diflubenzuron larvicide each animal must consume to effectively impact fly populations.

→ ECONOMIC IMPACT OF FLIES

As unchecked fly populations grow, their impact on an operation's profitability can be measured within an economic threshold. The economic threshold is defined as the level of flies in which the economic loss is equal to the cost of controlling.

HOUSE FLIES – FILTH FLIES

- The house fly has been implicated in the transmission of 65 disease organisms, such as PEDv, Parvovirus, E coli, PRRS, Dysentery, etc.
- Another house fly-associated economic threat to swine facilities is nuisance lawsuits. If left untreated, the house fly's prolific reproduction rate can spread populations to nearby properties creating complaints and generating potential fines from neighboring communities.

STABLE FLIES/BITING FLIES/BLOOD FEEDERS

- Feed on blood with piercing mouth parts, penetrating the skin of both animal and human hosts
- Known to cause reduced weight gain in swine and fly bites can result in trim loss
- Studies have shown biting flies can increase trim loss

OTHER BITING AND NUISANCE MANURE-BREEDING FLIES

- Black Dung Flies
- Phorid Flies
- Lesser House Flies
- Drain Flies



→ ENVIRONMENTAL AND ECOLOGICAL FATE

PERSISTENCE AND MOVEMENT IN THE ENVIRONMENT

Diffubenzuron appears to be relatively non-persistent and immobile in the environment. It rapidly binds with soil particles and organic matter and is quickly broken down by soil biota. The half-life is approximately 2 days in aerobic soil. Diffubenzuron is stable to hydrolysis and photolysis. Available data indicate that it is unlikely that diffubenzuron will contaminate ground or surface water.

FATE IN PLANTS

When foliarly applied at the labeled rate for use on citrus, soybeans and cotton, diffubenzuron undergoes very little, if any translocation from treated areas.

ACUTE, SUBCHRONIC AND CHRONIC TOXICITY OF DIFFUBENZURON IN ANIMALS

Diffubenzuron is of low toxicity to birds, small mammals, freshwater fish and marine/estuarine fish. It is not hazardous to honey bees. It is very toxic to aquatic invertebrates.

DEVELOPMENTAL/REPRODUCTIVE TOXICITY TERATOGENICITY MUTAGENICITY

The EPA has determined that diffubenzuron is not a carcinogen. The NOEL (No-Observed Effect Level) for maternal and fetal toxicity in rats and rabbits was >1000 mg/kg/day. The NOEL for reproductive effects in rats was 250 mg/kg/day. Diffubenzuron is not a mutagenic compound.

RESIDUE STUDIES

Sufficient data have been reviewed by the EPA to support registrations of products containing diffubenzuron and to establish acceptable tolerances. Established residue levels have been set for diffubenzuron in or on the following commodities: cottonseed, pasture, grass, soybeans, soybean hulls, milk, eggs and the meat, fat, and meat by-products of cattle, goats, hogs, horses, sheep and poultry.

→ REGULATORY STATUS

Diffubenzuron is a larvicide with activity against flies (house, stable, face, and horn) and many leaf-eating larvae of insects feeding on agricultural, forest and ornamental plants (gypsy moths and rust mites). The active ingredient, diffubenzuron, was first registered by the EPA in 1976. Diffubenzuron has completed an extensive reregistration process, resulting in the publication by the EPA of the Reregistration Eligibility Document (RED) in 1997.

ClariFly® Larvicide was registered by the EPA in 2006 as the first diffubenzuron cattle product for use in feed. In 2014, horses were added to several EPA diffubenzuron labels which are expected to be marketed in 2016. Then in 2015, the EPA granted the registration of ClariFly® Larvicide for feeding to swine.

The following excerpt from the 2015 Feed Additive Compendium summarizes the regulatory status of the use of diffubenzuron in cattle feeds. "FDA Status: No feed mill license required. When used in medicated feeds, medicated feed application requirement is determined by regulatory status of the drug. EPA Status: Product is a pesticide when used in non-medicated feeds. EPA registration is required for feeds offered for sale except when custom blending per the provisions of 40 CFR 167.3. In medicated feeds, the product is a feed additive and no EPA registration is required when the source of Diffubenzuron is an EPA-registered product."

→ SWINE FEEDING LEVELS

To control manure-breeding flies, all swine on the premises need to consume adequate quantities of ClariFly® Larvicide every day. The labeled feeding level for this product for swine is 0.2 – 0.3 mg of diffubenzuron per kg of body weight per day. It is recommended that pigs weighing 90 pounds and under receive 0.3 mg/kg/day to account for greater variability of feed consumption with lighter weight animals. Pigs over 90 pounds have demonstrated proper fly control when receiving feed formulated at 0.2 mg/kg/day.

NO WITHDRAWAL

Feeds and supplements containing ClariFly® Larvicide may be fed up to slaughter.

GET SEASON-LONG FLY CONTROL WITH CLARIFLY® LARVICIDE

Start using ClariFly® Larvicide in your feed mix early in the spring before flies begin to appear. Continue feeding ClariFly® Larvicide through the summer and into the fall, until cold weather reduces or ends fly activity.

To get ClariFly® Larvicide in your feed mix, contact your micro ingredient supplier or local feed dealer. For more information or help starting an IPM program, call 1.800.347.8272 or visit www.CentralFlyControl.com.

