

BUZZOFF

(NATURAL MOSQUITO CONTROL)

INTRODUCTION:

BuzzOff is a biological insecticide with *Bacillus thuringiensis israelensis* (Bti) as the active ingredient. It is specifically designed to target and eliminate mosquito larvae, providing an environmentally friendly solution to mosquito control. This product is highly specific in its action, ensuring that it is not harmful to non-target animals or plants. By focusing on mosquito larvae, BuzzOff effectively reduces mosquito populations without causing collateral damage to other organisms or the ecosystem.

COMPOSITION:

Component	Content (% w/w)
<i>Bacillus thuringiensis israelensis</i>	: 40.00
Adjuvants and carrier	: 60.00

BIOLOGICAL PROPERTIES:

Mode of action:

When mosquito larvae consume BuzzOff, which contains the bacterium *Bacillus thuringiensis israelensis* (Bti), the following sequence of events occurs:

- 1. Ingestion of Spores:** The mosquito larvae ingest Bti spores as they filter-feed on organic matter in the water.
- 2. Activation of Toxins:** Once inside the larvae's alkaline gut, the Bti spores release specific crystalline proteins known as endotoxins. These toxins are activated in the high pH environment of the mosquito larva's midgut.
- 3. Toxin Binding:** The activated toxins bind to receptors on the gut cells lining the midgut of the larvae. This binding creates pores in the gut cell membranes.
- 4. Gut Cell Disruption:** The formation of pores disrupts the integrity of the gut cells, causing cell lysis (destruction) and leakage of gut contents into the body cavity.

5. **Cessation of Feeding:** As the gut cells are damaged, the larvae stop feeding almost immediately. This leads to starvation.
6. **Death of Larvae:** The damage to the gut cells and the subsequent leakage result in septicemia (blood poisoning) and eventually the death of the larvae within a few hours to days.

This mode of action is highly specific to mosquito larvae because the receptors for Bti toxins are unique to certain insect species, primarily those within the Diptera order (mosquitoes, blackflies, and midges). Consequently, BuzzOff does not affect non-target organisms such as mammals, birds, fish, or beneficial insects, making it an environmentally friendly and safe option for mosquito control.

RECOMMENDATIONS:

Target pests	Dosages (g/ha)	Dilution in water (liters)
Mosquito feeding larvae	400-500	500-600

ADVANTAGE OF BUZZOFF:

- 1 **Targeted Action:** BuzzOff specifically targets mosquito larvae, reducing mosquito populations without affecting non-target organisms. The specificity of Bti ensures that beneficial insects, mammals, birds, fish, and other wildlife are not harmed.
- 2 **Environmental Safety:** As a biological control agent, Bti is derived from natural bacteria, making it a sustainable and environmentally friendly alternative to chemical insecticides. It does not pollute water sources or soil and has minimal impact on the ecosystem.
- 3 **Resistance Management:** Unlike chemical insecticides, which can lead to resistance over time, Bti has a complex mode of action that reduces the likelihood of mosquitoes developing resistance. This ensures long-term effectiveness in mosquito control programs.
- 4 **Human and Animal Safety:** BuzzOff is safe for humans, pets, and livestock. It poses no risk to human health when used as directed, making it suitable for use in residential areas, public spaces, and agricultural settings.

- 5 **Ease of Application:** BuzzOff can be easily applied to mosquito breeding sites, such as ponds, marshes, and other stagnant water bodies. It is available in various formulations, including granules, tablets, and liquid concentrates, allowing for flexible application methods.
- 6 **No Residual Toxicity:** Bti degrades quickly in the environment, leaving no harmful residues. This minimizes the risk of long-term environmental contamination and allows for repeated applications without adverse effects.
- 7 **Compatibility with Integrated Pest Management (IPM):** BuzzOff can be integrated into IPM programs, complementing other mosquito control measures such as habitat modification, biological control with natural predators, and public health campaigns. Its use supports a holistic approach to mosquito management.

METHOD OF APPLICATION:

1. **Determine the Target Area:** Calculate the total area that needs to be treated in hectares.
2. **Prepare the Solution:**
 - Measure the recommended amount of BuzzOff based on the size of the target area.
 - Mix the measured amount of BuzzOff with 500-600 liters of water per hectare. Ensure thorough mixing for even distribution.
3. **Select Suitable Spray Equipment:** Choose appropriate spray equipment that can handle the required water volume and provide even coverage. This could include backpack sprayers, boom sprayers, or other suitable devices.
4. **Apply the Solution:**
 - Adjust the spray settings on your equipment to ensure even coverage.
 - Spray the solution evenly over the entire target area, ensuring all potential mosquito breeding sites are covered. Focus on areas with stagnant water where mosquito larvae are likely to be present.

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