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Protocol for Efficacy Trials for Altosid XR Briquets

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Note: This protocol is modified from the Zoecon Corporation version. The modification is an attempt to minimize a bias in the assessment of "dead adults", and to decrease the time spent reading the samples. If ice cream containers are used as described in the Zoecon protocol, sexually competent adults may emerge, but later be counted as "dead" if they die prior to collecting the data for dead pupae, dead adults, and live adults needed to calculate the Emergence Inhibition (E.I.). By using BioQuip "breeding cages" or similar funnel-style emergence cages, live adults can be more easily and accurately separated from those that died during or shortly after emergence. Furthermore, a sample can be collected, set up in the lab, and examined when time permits.

EXPERIMENTAL DESIGN

Treat a minimum of 3 test plots per application rate. Select an additional 3 production sources as untreated check plots. If feasible, treat additional plots as a hedge against drought conditions.

APPLICATION METHODS

1. Briquets may be applied pre- or post-flood. Note the timing (pre- or post-flood) of application and the instars present at the time of application.

2. Accurately estimate and record the surface area and average depth of each test plot. Also record the type (i.e. consistency) of substrate in each plot. Note: Some substrates are more prone to siltation than others, and this can affect the efficacy of the application over time.

3. Determine the application rate (quantity) of Briquets to be applied to each test plot (see label). Two application rates appear on the label: (1) 1 Briquet/100 square feet (9.3 square meters); and (2) 1 Briquet/200 square feet (18.6 square meters). Note: The lower rate is indicated for shallow depressions (Ae. And Oc. spp.) whereas the higher rate is referenced for Cx., Culiseta, etc.

4. To use the higher rate, apply the Briquets to the plots in a grid pattern with 10 ft. (3 meter) centers.

5. To use the lower rate, apply the Briquets to the plots in a grid pattern with 14 ft. (4.3 meter) centers. Record the number of Briquets used and the approx. surface area (ft2 or m2) of each test plot.

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EVALUATION METHODS

1. Monitor larval development in the test and check plots.

2. Record average water depth in each plot.

3. After pupae appear, collect and count 25-100 pupae from each treated and untreated plot, and record the number of pupae collected. Be sure to exclude larvae, but do include an adequate amount of water from the source for transfer into emergence cages. If pupae are collected from a water pocket when the plot is drying up, record this.

4. Place the pupae and water from each plot into a BioQuip "Breeding Cage" or similar funnel-shaped emergence-type cage. Observe cages daily to note the progress of mosquito emergence.

5. When adult mosquito emergence is complete, count and record the number of dead pupae (DP), dead adults (DA) on the water surface, and live adults (AA) in each container.

6. Calculate % of Emergence Inhibition (% E.I. = % Control) for each container (plot) using the formula:

$$\% \text{ E.I.} = \frac{(DP + DA)}{(DP + DA + AA)} \times 100$$

7. Repeat steps 1 – 7 after each flooding for intermittently flooded test plots. For sources that retain water for most or all of the season, repeat steps 1 – 7 every 7 – 10 days.

8. Continue monitoring plots until control falls below acceptable levels, e.g., <60%.