

Preliminary study for paper wasp trial in Palestine 2007

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Paper wasps are responsible for numerous stinging incidents reported to healthcare professionals and pest management professionals in North America every year. These wasps often live near occupied structures, which place them close to human activity (Akre et al. 1980, Akre 1995, Greene 2003). Nests commonly occur on eaves of structures, but they can also be found within structures and plants. They are commonly found near sites of food, such as trash receptacles. They are a particular problem in late summer and autumn when their colonies peak in size (Akre et al. 1980).

Trapping social wasps to eliminate colonies has been deemed ineffective to some pest professionals but beneficial to some (Gangloff-Kaufman 2002, Wegner 2003). For effective trapping to occur, some believe that traps must be placed 2 weeks in advance within an area to establish a strong foraging behavior to the traps, instead of foraging for other available food in the area. Others believe in early placement of traps, so traps target early season queens (Toft and Harris 2004). Even though trapping may not eliminate the wasp colony, it can trap some foraging wasps. Wasps found within the traps can act as an indicator of the effectiveness of various non-chemical or chemical treatments placed in the environment.

In this trial, we observed one sampling technique using fermented apple juice within cabins to trap paper wasps. Treatment will begin in March 2008, and the effectiveness of a non-chemical treatment of foam and hardware cloth to a chemical dust treatment, Drione™ will be compared to determine the overall decrease of the paper wasp population. This will provide valuable answers to the effectiveness of using non-chemical control tactics to decrease paper wasp populations.

Methods and Materials

A paper wasp trial was initiated on August 20, 2007 at the Girl Scout of Tejas Camp Bette Perot in Palestine, TX. For this initial study, we wanted to confirm if indoor sampling techniques would be feasible before treatments are assigned to each cabin. Complaints about paper wasps have been indoors and outdoors, but we wanted to determine if trapping could be conducted indoors. Fifteen cabins (Figure 1) and three latrines were evaluated by placing two Yellowjacket and Flying Insect Traps™ indoors in each location; one on the right side of the cabin and one on the left side of the cabin. The traps were hung above windows on either side of the cabin onto a nail that was centered directly above the window. Traps were filled with 150-200 ml (Landolt, et. al 1999) of fermented apple juice (correspondence with Landolt) along with two drops of detergent and then placed indoors for monitoring. Traps were placed into each cabin on Monday and retrieved on Friday of each week for a total of 7 weeks. Upon retrieval of the traps, the contents of each trap were evaluated and the apple juice mixture discarded. The last retrieval date was October 5, 2007.

Results and Discussion

For week one beginning on August 20th, nine *Polistes carolina* were found dead on the floor in cabin 2 and fruit flies were found in 3 out of 36 traps. In week two beginning on August 27th, one *Polistes carolina* was found in latrine one, four *Polistes carolina* were found in latrine 3 and one *Polistes carolina* was found dead on the floor in cabin 8; also, fruit flies were found in cabin 5. In week three beginning on September 3rd, one *Polistes carolina* was found dead on the floor in cabin 13 and fruit flies were found in 3 out of 36 traps. Week four beginning on September 10th, there were no insects found within any of the traps. In week five beginning on September 17th, there was one dead *Polistes carolina* found dead on the floor in cabin 4. In week six, there was one syrphid fly found in cabin 2. For the final week beginning on October 1st, no insects were found within any of the traps.

Based on our findings, we plan to alter our treatment and sampling methods. Traps will be hung outdoors instead of inside the cabins. Populations found indoors will be based on personal sightings and complaints by the campers. Due to the camping schedule, treatments will be placed around the 16 cabins in early March 2008. Treatments include: control cabins with no chemical or exclusion treatment, cabins with exclusion only, cabins with chemical treatments only and cabins with exclusion and chemical treatments. Chemical treatments will consist of dusting the holes in the cabin with Drione™ (1% pyrethrins, 10% pipernyl butoxide, 40% amorphous silica gel). For the exclusion treatments, an expanding foam will be used to fill cracks within the siding. Each treatment will be replicated 4 times, so a total of 20 cabins used for the trial.

Outdoor monitoring will take place weekly from August 18th - September 29th, due to the use of the cabins all through the summer season. Two wasp traps will be used outside each cabin to determine the population of paper wasps at both the pre and post treatment observations. Each trap will be attached to a tree limb adjacent to the cabin. The number of paper wasps found within each trap will be counted at each observation. In addition, the number of actively flying wasps around each building will be counted at pre and post evaluations. The number counted before treatment will serve as 100% activity. At each evaluation, wasps will be counted and compared to the initial count. Also the total number of stings from the paper wasps will be recorded per cabin and compared to numbers recorded in previous years. Hopefully, we will be able to observe a decrease in the number of total stings throughout the summer within the treated cabins.

Figure 1. Girl Scout cabin in Horseshoe Bend at the Girl Scout of Tejas Camp Bette Perot camp in Palestine, TX.



Figure 2. Girl Scout cabin in Horseshoe Hollow at the Girl Scout of Tejas Camp Bette Perot in Palestine, TX.



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