

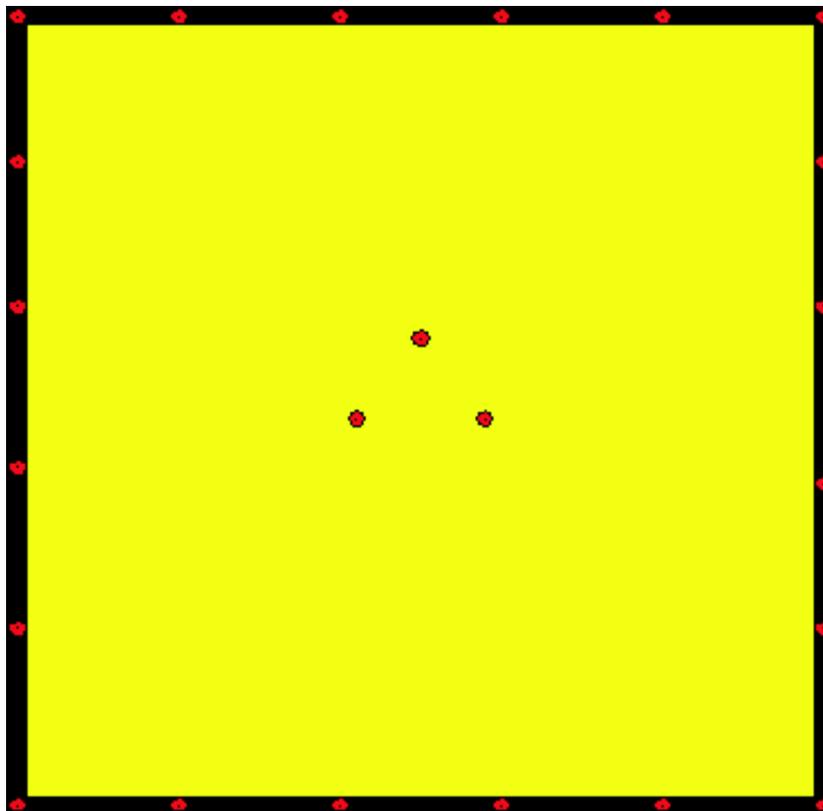
**EXPERIMENTAL AND APPLIED TESTING OF YELLOWJACKET TRAPPING  
EFFICACY IN UPSTATE NEW YORK;  
SUMMARY OF WORK TO DATE**

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Stinging insects, especially yellowjackets (*Vespula* and *Dolichovespula* spp.), are among the most frequent and persistent pest problems at schools, parks, and similar locations. Murray (2000) stated that they were the most important pests at Maine schools inducing the highest per cent of pesticide treatments. Braband et al. (2002) found that stinging insects were the second most frequently reported pests by NYS schools. Yellowjackets are also common hazards at late summer and early fall outdoor festivals.

One approach to reducing the risk is the use of baited container traps. Large numbers of yellowjackets can be caught in such traps. Whether the traps actually reduce the risk of being stung has not been experimentally tested. For three years, we have tested the premise that trapping around a periphery of a plot will reduce the number of yellowjackets in the center of the plot. The assumption was made that the fewer the yellowjackets, the less the risk of being stung. We have also been comparing the results of our tests to applied use at community festivals and school playgrounds.

Our study design consisted of two plots several hundred yards apart from each other in open fields. Each plot was a square 100 feet by 100 feet. Trapping stations were established at twenty-foot intervals around the perimeter of each plot (Figure 1).



Each station consisted of a 10-foot length of 3/4-inch conduit pipe driven into the ground. Yellowjacket container traps were attached to the top of these poles (Figure 2).



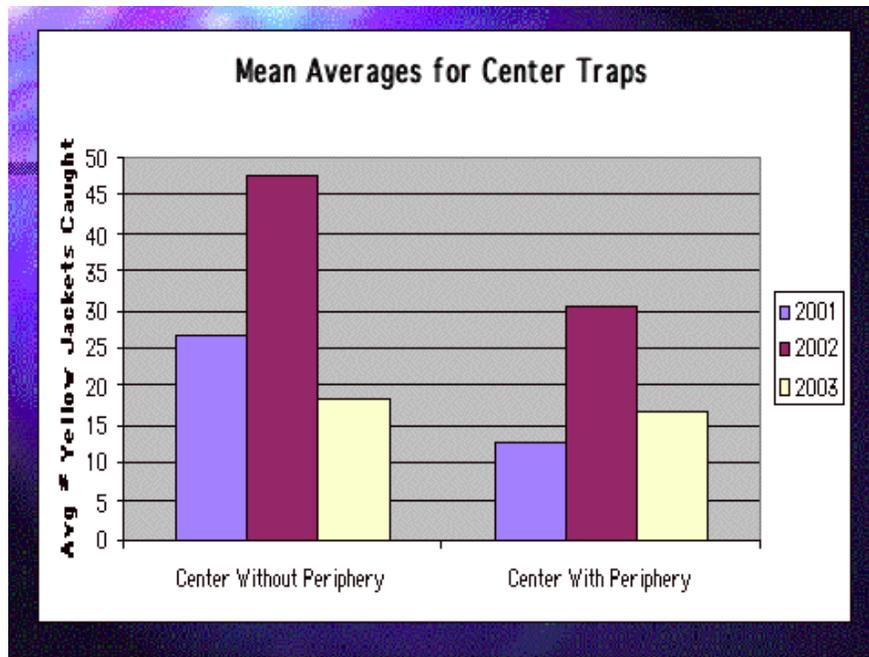
Each plot also had a triplet of trap stations in the center (Figure 1). During a two-week long testing trial, traps were maintained on all poles (periphery and center) on one plot but only on the center poles in the second plot. Plots were alternated from trial to trial. In other words, in the first trial, Plot A had traps on both the periphery and center while Plot B had traps only in the center. In the second trial, Plot A had traps only in the center while Plot B was trapped on both the periphery and center. In the third trial, the plots were switched again and so on for a total of four or five trials per year.

In 2001 and 2002, the trapping trials were conducted at the same locations at the NYS Agricultural Experiment Station in Geneva, NY. In 2003, the locations were changed to private land near Canandaigua, NY. In all three years, the trials were started in August and extended into October. Following is a summary of the major findings to date.

By far, the largest majority of the stinging insects caught in the traps were *Vespula* yellowjackets, and only this data has been analyzed. Other plentiful species included the bald-faced hornet (*Dolichovespula maculata*), paper wasps (especially *Polistes dominulus*), and the European hornet (*Vespa crabro*). In addition, a potpourri of other stinging insects were also caught in small numbers.

In all three years, captures of yellowjackets started slow, peaked in September, and dropped off rapidly in October. Although never significantly different (Student's T-test,  $P < 0.5$ ), more yellowjackets were caught in the center traps in

plots without peripheral traps than in the center traps in plots with peripheral traps (Figure 3).



This may indicate a trend for the peripheral trapping to reduce the number of yellowjackets inside the plots. In the first and third years of the study, number of yellowjackets trapped declined once the peripheral traps were switched and gradually built up as each two-week trial progressed. Possibly yellowjackets were homing in on the plot with the most traps and took awhile to change their behavior once the peripheral traps were moved. If so, this would indicate that the traps are attracting, and not just merely intercepting, yellowjackets.

Trapping yellowjackets for the purpose of reducing stinging risks at community festivals has been done in at least two locations in upstate New York. Cayuga County has been trapping at two annual events in Emerson Park for at least five years (Bruce Natale, Cayuga Co. Planning Office, personal communication). Trapping at the Clothesline Art Festival in Rochester, NY has been conducted for two years (Peter Castronovo, University of Rochester, personal communication). In both situations before the use of the traps, the number of instances of first aid administered for stings was described as “numerous”. Concurrent with trapping, such cases were noticeably reduced, usually to less than six.

In 2000 and 2001, we experimented with the use of traps at two school districts, one each in Albany County and Livingston County. The traps were placed around

elementary school playgrounds. We compared trapped playgrounds to non-trapped playgrounds in both districts by regularly surveying for stinging insect nests and surveying teachers and school nurses about known or perceived risks. Collectively over both years and both school districts, almost 10,000 stinging insects were captured. The vast majority (98%) was *Vespula* yellowjackets. However, we have real questions whether we reduced the risk of being stung at the playgrounds, especially given the previously mentioned evidence that the traps attract yellowjackets.

To conclude and based on our current results, the best use of yellowjacket traps is probably when there already exists a strong attractant, such as concession stands, for yellowjackets. I would not recommend using the traps if such attractants do not exist which is the case for many playgrounds. For festivals, the recommended procedure is to start trapping one week before the festival begins and continue trapping through the duration of the event. Traps will need to be regularly serviced, possibly daily, while they are up. During the 2004 field season, we plan to continue the trapping trials with some adjustments so that they more closely mimic how the traps are actually used.