

TRAPPING ASIAN HORNETS (*VESPA VELUTINA*) WORKERS AND QUEENS IN FRANCE, USING THE APIBURG® HIVE BOTTOM BOARD

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Abstract

The Apiburg® trap, initially designed to control invasive species like the small hive beetle (*Aethina tumida*), wasps and robbing honeybees), replaces completely and permanently the hive bottom. The flying intruders, attracted by the natural odours of the bee colony, enter the trap through its lateral openings where conical funnels prevent their escape back to the environment. We tested the efficacy of this device against the Asian hornet (*Vespa velutina*) in France and we evaluated the number of workers and queens were entrapped in Apiburg® according to their dry weight. A total of 601 hornets were entrapped in 16 Apiburg® traps. While the first weeks of predation hornets' average dry weight was 95mg (only one group), after the 11th of October a second group appeared with heavier individuals (average weight of 170mg.), suggesting the presence of queens in traps. While winter was approaching, the two groups were distinguished; workers presented an average dry weight 120mg while queens had an average weight of 225mg.

Materials and Methods

During a predation season, an apiary of 16 colonies .was equipped with bottom hive traps at the area of Saujon, France. The area of the apiary was selected amongst 4 different apiaries after monitoring the trapping of attacking hornets from July 26, 2011 until August 30, 2011. From August 30 until November 11, 2011, a total of 601 hornets were entrapped in Apiburg®. They were dried in an oven and each individual's dried weight was noted.

Results & Discussion

Results showed that at the beginning of the experiment there was only one group of hornets (workers) with an average weight of 95mg. The minimum weight was 33.05mg while the maximum weight was 126.12mg. After the 11th of October, a second group (queens) appeared with an average weight of 170mg. While winter was approaching, the two groups were distinguished; workers presented an average dry weight 120mg while queens had an average weight of 225mg. The maximum weight of an entrapped queen reached 257.03mg. The total distribution of entrapped hornets according to their weight is presented in Figure 1 while Figure 2 presents the dry weight of hornet workers and queens during 5 sequential samplings.

30 August - 11 November

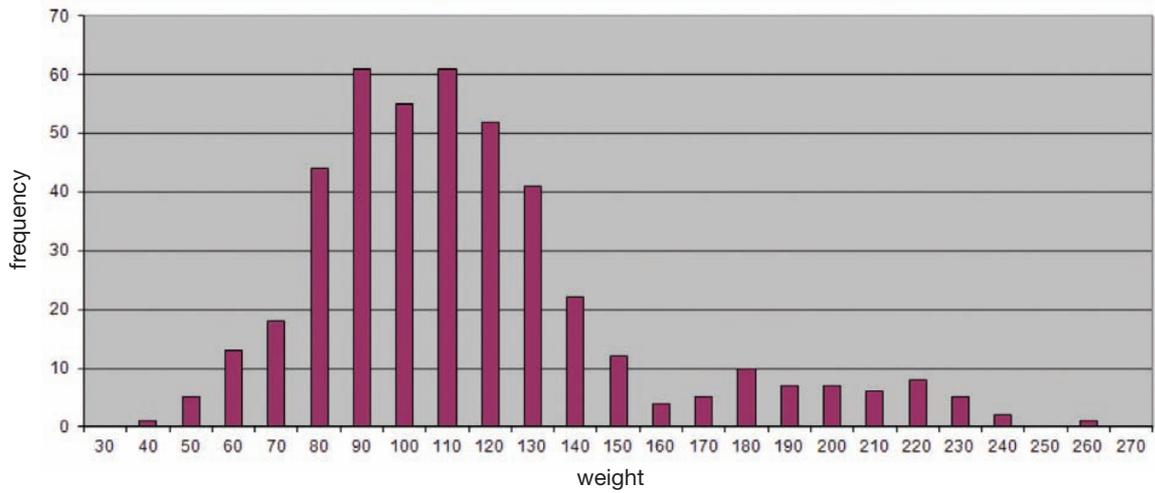
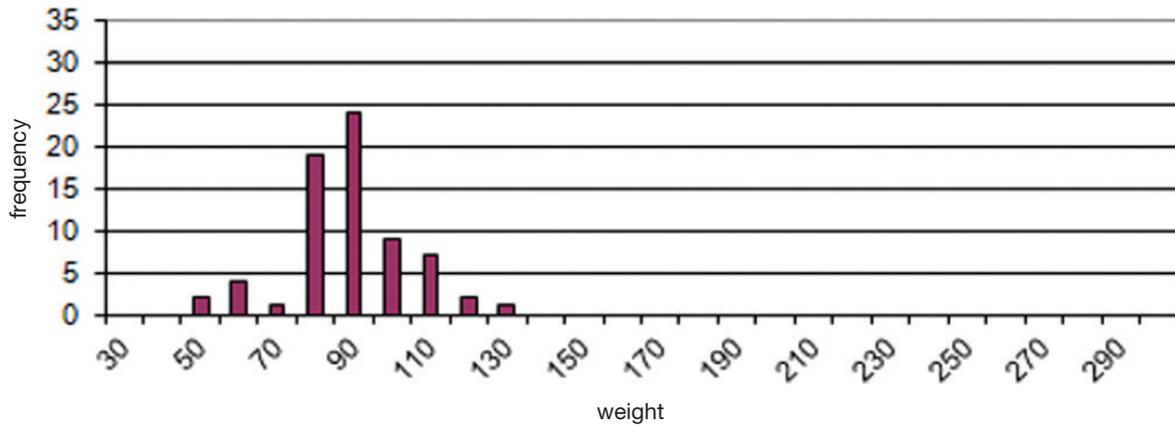


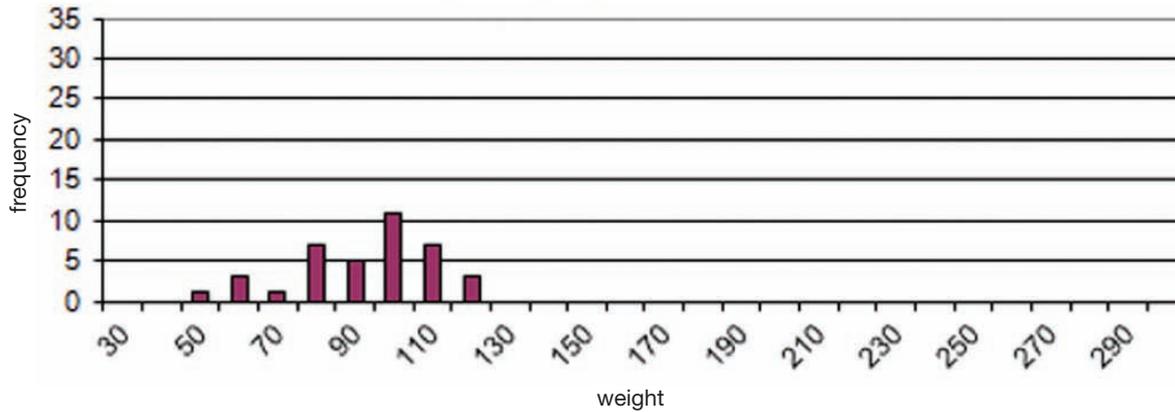
Figure 1. Total distribution of entrapped hornets' dry weight during experiments

Figure 2.

August 30



September 20



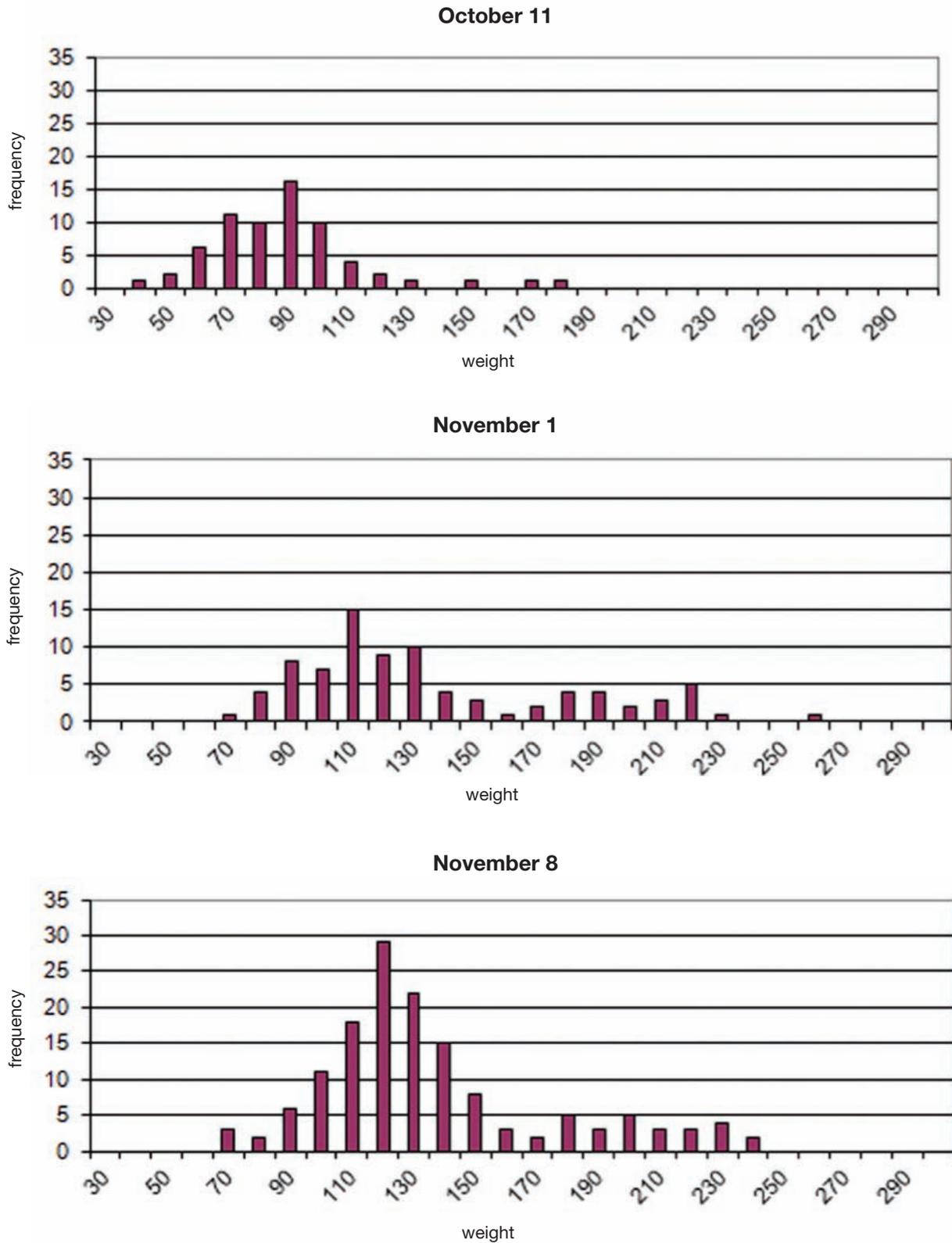


Figure 2. Distribution of entrapped hornets' dry weight upon time (August 30 - November 11)

Results indicate that the Apiburg® devise can attract and entrap attacking hornet queens (in addition to hornet workers), a fact that might contribute significantly to the reduction of the development of new hornets' nest the following spring.