**Methods**

*Statistical Analyses* – All statistical analyses were performed using JMP®, Version Pro 12. SAS Institute Inc., Cary, NC, 1989-2007. During the calculation of *mite biting rate*, colonies with low mite drop rates (i.e. <10 mites/day) were excluded since it was not possible to obtain a realistic ratio from these data (e.g. a colony that has dropped only 1 chewed mite vs. only 1 unchewed mite would respectively yield a 100% and 0% biting rate). All colonies were included to the analyses incolving mite drop numbers.

One-way ANOVA was used to analyse both mite drop and biting rates of 3 groups of honey bee colonies in this study (i.e. 0%, 50%, and 100% MBB). Bivariate correlation was used to analyse the correlation between mite drop and biting rate of colonies.

**Results and Discussion**

*Varroa drop numbers (Figure 1)* – Group 2 had the highest daily mite drop numbers (36.12 mites/day), Group 1 was intermediate (28.67 mites/day), and Group 3 had the lowest number (23.17 mites/day) (p=0.0186). However, being in a different group explained only a small portion of the observed difference between mite drop numbers of the colonies in the experiment (Rsq=0.062). Hence, while the genetic background of colonies has an effect on the number of mites dropped, there seems to be other factors affecting this. Here it should be noted that mite drop is not independent from mite infestation which is further correlated with general colony health, population size, demographics and many other individual and colony level factors. Hence, it is an experimental and statistical challenge to explain mite drop by a single factor.

**Figure 1**

*Varroa biting rates (Figure 2)* – Group 1 had the highest percentage of chewed Varroa mites (38.68%) within the total that had dropped on sticky boards, Group 2 was intermediate (32.06%), and Group 3 had the lowest percentage (20.91%) (p=0.0074). Once again, being in a different group explained only a small portion of the observed difference between mite biting rates of the colonies in the experiment (Rsq=0.087). As stated above, establishing strong correlation between a single variable and a complex measure influenced by multiple factors is rather unlikely.

**Figure 2**

*Varroa drop numbers vs. biting rate (Figure 3)* – Biting rates of colonies in this study were negatively correlated with number of Varroa mites dropped by the colonies (p=0.0035, Rsq=0.066). However, the bivariate model in our analysis resulted in a weak correlation, indicating possible other factors acting on the variables (i.e. drop numbers and biting rate). The red line in Figure 3 represents the fit of correlation. A larger slope of the fit line (hence the Rsq value) indicates stronger correlation between the variables.

**Figure 3**

