APIGUARD: EFFECTS OF WINTER TREATMENT ON SPRING COLONY DEVELOPMENT

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INTRODUCTION

Two studies were conducted to determine the effects of winter treatment with Apiguard on the spring development in honeybee colonies naturally infested by *Varroa destructor*.

METHODS:

Study 1
In November 2001, six colonies naturally-infested with varroa mites were treated with 25g Apiguard and six colonies were treated with 50g Apiguard.

The treated groups were dosed on day 0 by placing the Apiguard spread on foundation on the top bars of the brood chamber over the centre of the brood nest area. An eke was placed on the top of the brood chamber to allow the bees ready access to the Apiguard. Sticky floor inserts were placed in each colony to trap any fallen mites. These inserts were collected and replaced with new inserts weekly for the first two weeks after treatment and then every two weeks for a total of 20 weeks after treatment.

Study 2
In October 2002 (Study 2), six colonies naturally-infested with varroa were treated with 25g Apiguard and six control colonies received Apistan (removed after 6 weeks).

Treatment followed the regime described above but inserts were examined for the first four weeks of the experiment. Experiment duration was 22 weeks. In Study 2 a second treatment with 25g Apiguard was applied to the 6 colonies and removed on day 140.

On day 140 for both studies 1 and 2, Apistan strips were placed in all colonies and fallen mites collected to determine the number of mites remaining in the colonies at the end of the treatment period. Efficacy was calculated as the ratio of dead mites reported during the treatment period divided by the total number of mites (dead mites during treatment + surviving mites from bees and brood (recovered by Apistan) at the end of the treatment period).

Two of the six colonies treated with Apiguard in Study 2 died of natural causes by early January 2003 and are therefore excluded from the data analysis.

RESULTS:

Study 1 (see Figure 1):
Treatment of colonies with 25g Apiguard resulted in a mean efficacy of 55% (± 17%). Treatment with 50g Apiguard resulted in a mean efficacy of 74% (± 19%), with an apparently slower development of brood in the spring than treatment with 25g Apiguard.

Study 2 (see Figure 2):
Treatment of colonies with Apiguard resulted in a mean efficacy of 27% after the first 4 week treatment and 41% after the second 4 week treatment, but mite mortality continued at approximately 10% per 2 week assessment until by late March efficacy was 94%. Treatment with Apistan confirmed a mean efficacy of 95%.

In both studies, treatment with Apiguard gave an apparently similar development of brood to that in the Control or Apistan treated colonies and there were no other adverse effects observed.

Figure 1: Study 1 - Cumulative efficacy at end of trial

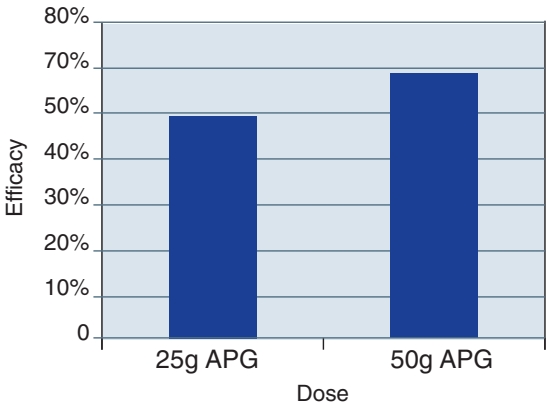
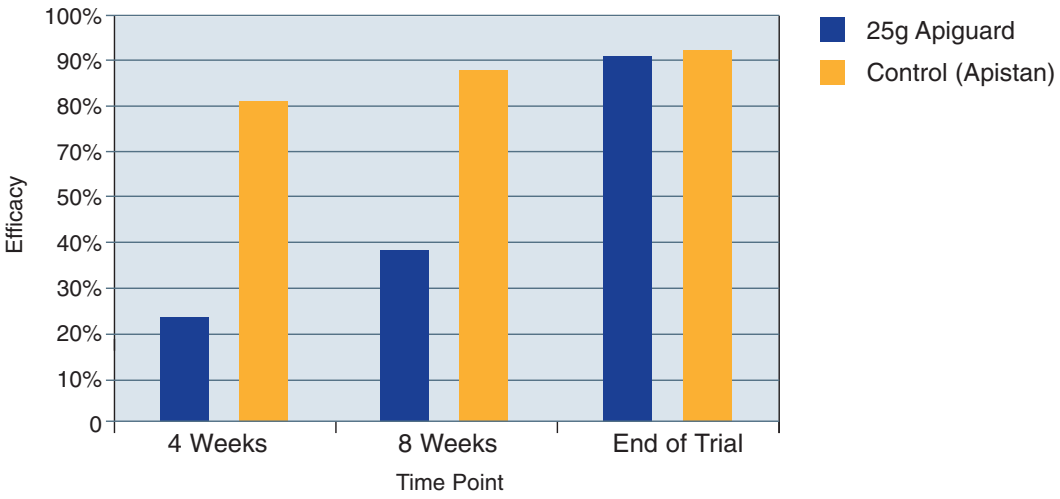


Figure 2: Study 2 - Mean efficacy after treatment with Apiguard or Apistan



CONCLUSIONS:

While the optimum time to treat for varroa with Apiguard remains late summer or early autumn (when the mean daily temperature is in the range 15°C to 40°C), these studies show the benefits of winter treatment with Apiguard.

Study 1 commenced on November 12th, while in Study 2 day 0 was October 3rd. The consequent higher mean temperatures experienced in Study 2 likely influenced the increased efficacy.

Winter treatment with Apiguard is necessitated by high infestation levels, or re-infestation. Best results are achieved by dosing with 25g Apiguard for 4 weeks, followed immediately by 25g for a further 4 weeks. It should be noted that earlier commencement of winter treatment may lead to better efficacy. Mite mortality will continue to rise until Spring.