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Thymol has Potential for Varroa Mite Control in Canada

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Thymol is a natural chemical found among many species of herbs, most notably species of thyme. Research in Canada, the US and Europe have demonstrated thymol can be toxic to varroa mites and tracheal mites at doses relatively safe for honey bees. Two products from Europe that use thymol to control honey bee mites are Apiguard™, produced by Vita Europe (England) and ApiLife VAR™ by Chemicals LAF (Italy). We compared a fall application of both treatments to Apistan in September 2000.

Apiguard™ consists of thymol in a food grade gel, available in either premeasured foil trays suitable for small-scale beekeepers or in bulk buckets containing enough gel to treat 30 hives. ApiLife VAR consists of thin vermiculite tablets impregnated with thymol and small amounts of eucalyptol, menthol and camphor. The two products are easy to use and are suitable for large-scale commercial operations as they are quickly applied to the tops of brood chambers; Apiguard gel on 4" x 6" pieces of paper placed on frame top bars and ApiLife VAR tablets directly on the top bars. Full treatments with each product take 4 weeks and require reapplication of gel or tablets after 2 weeks. One particularly convenient feature of both products is that they do not require beekeepers to return to the hives to remove the treatments because the bees typically remove any remaining product. Apistan, by comparison, also requires two trips to each hive, one to install the strips and one to remove them, but removal in late fall is sometimes a problem for beekeepers.

We compared Apiguard, ApiLife VAR and Apistan side by side to determine their ability to control Varroa control and not harm bees. We began the treatments on September 15th and ended them by October 27th. By mid-September honey bee colonies in our study area typically have much less brood than in mid-summer, surplus honey production is over and bees have begun to cluster at night as temperatures may drop below freezing. Maximum daytime temperatures at the beginning of the treatment period was in the low to mid-twenties (EC), but dropped to single digits by the end. There was virtually no brood left in the colonies by October 27th. We monitored natural mite drop immediately before the treatments, counted all the mites killed in each hive throughout the treatment period, then estimated mite populations in the hives the following April. At that time we also measured adult bee and brood populations.

Apiguard and ApiLife VAR both gave us Varroa control equal to Apistan. Apiguard treated colonies had 3/4 less brood and adult bee populations in early April compared to Apistan treated colonies. Also, ApiLife VAR colonies treated with 3 tablets, instead of 2 tablets, had only somewhat more than half brood than Apistan treated colonies. Despite observing differences in April, all of the treated colonies developed normally with no apparent differences by early May. During treatment, bees tended to cluster away from

the thymol gel and tablets but they did not hesitate to remove feed from the internal frame feeders. Bees in all thymol treated hives were agitated at hive entrances and more flighty than Apistan-treated bees.

The results of our study indicate that these two thymol products have potential for fall use in Canada to control varroa mites. Neither product is registered for use in Canada at the time of writing but at least one manufacturer is attempting registration at this time.