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January 15, 2014

Mr. Erik W. Johansen
Special Pesticide Registration Program Coordinator
Washington Department of Agriculture
P. O. Box 42560
Olympia, WA 98504

Re: Request for HopGuard Section 18 Amendment

Dear Mr. Johansen,

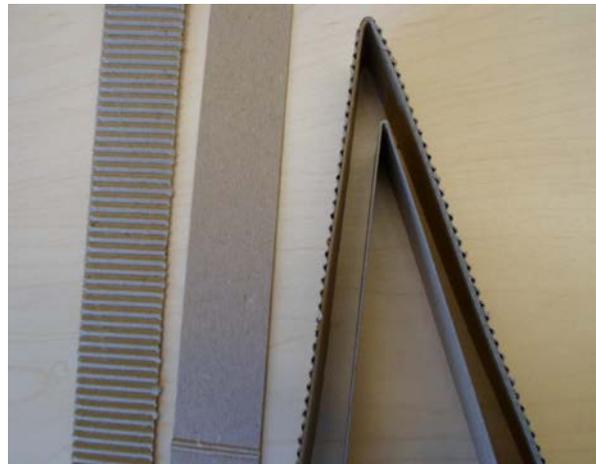
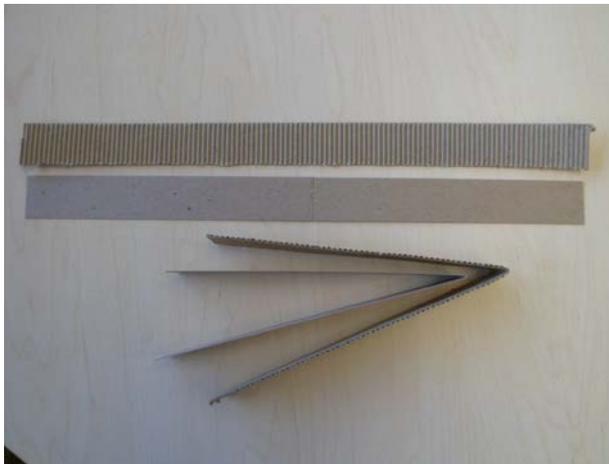
The current insert strip used for the delivery of the HopGuard active to the bee hive requires a significant amount of manual effort to place the strip properly. Additionally, as the HopGuard active dries out quickly on the current insert strip in many cases the beekeepers are required to treat multiple times to insure adequate control of the Varroa mite. The beekeepers from all states who have approved HopGuard have requested that we improve the ease in application (i.e. they would prefer a "stiffer" strip) and we increase the length of time the strip stays active in the bee hive. The current strip is active from 2 to 5 days; the ideal time for the beekeeper is at least 12 days which coincides with the time the mite is developing under the brood cap.

With the cooperation of the USDA-ARS and the Canadian governmental Apiculturists, we have developed an improved insert strip. We have discussed this proposed strip change with the EPA and they are supportive of the change as we are responding to the needs of the end-user, have improved the overall efficacy of the active by improving the delivery device, and by eliminating the need for multiple treatments have reduced the amount of active that will ultimately be entering the hive. Accordingly we are requesting the state of Washington to submit a request for a Section 18 amendment to permit the use of the revised insert strip.

Rational/Specific Data to Support Change

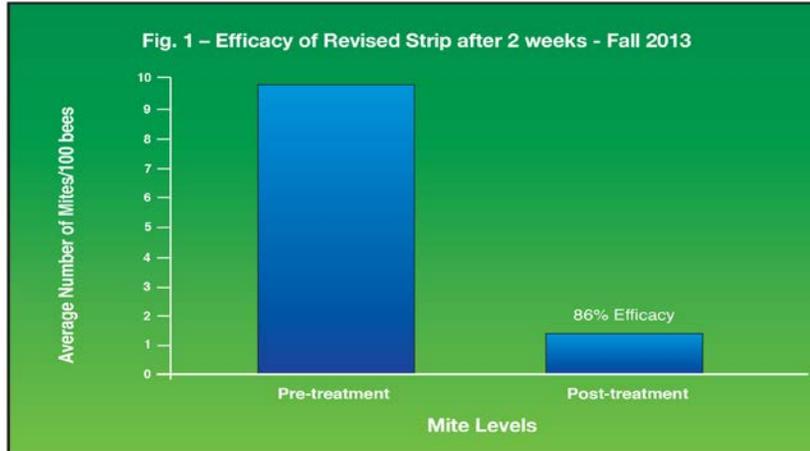
1. The current insert strip is a single layer cardboard strip. When saturated with the HopGuard liquid, it becomes very "flexible" which takes time and significant effort to place the strip properly between the brood frames as directed. Additionally the active liquid dries very quickly once placed in the hive. As it dries, the efficacy is reduced. Typically the strip is only active from 2 to 5 days, thus requiring up to 3 consecutive applications to obtain adequate control.

2. We have made the following modifications to the single layer cardboard insert strip to address its shortcomings. We have attached pictures of the current and the revised strip below to provide for a better understanding of the modifications. Each picture shows the revised strip alongside the current strip with the revised strip having the corrugated surface.
- a. We first made the single layer cardboard strip denser and thicker to improve the rigidity of the strip (i.e. to make it stiffer when saturated with the liquid active and thus making it easier to apply).
 - b. A corrugate fluting was added to only one side of the strip. This increases dramatically the surface area for the active to absorb onto the strip and thereby increases the activity of the strip from the current 2 to 5 days to more than 12 days. The current strip “holds” 12 grams of the HopGuard liquid...the new strip “holds” 25 grams of HopGuard liquid. The dosage rate of 2 strips per 10 frames of bees remains the same. This change all but eliminates the need for consecutive treatments.
 - c. We have also buried a thin, opaque strip of Mylar within the cardboard. This helps to increase both the rigidity of the strip and prevents “very aggressive” hygienic bees from literally cutting the strip in two and removing it from the hive in a matter of one or two days.

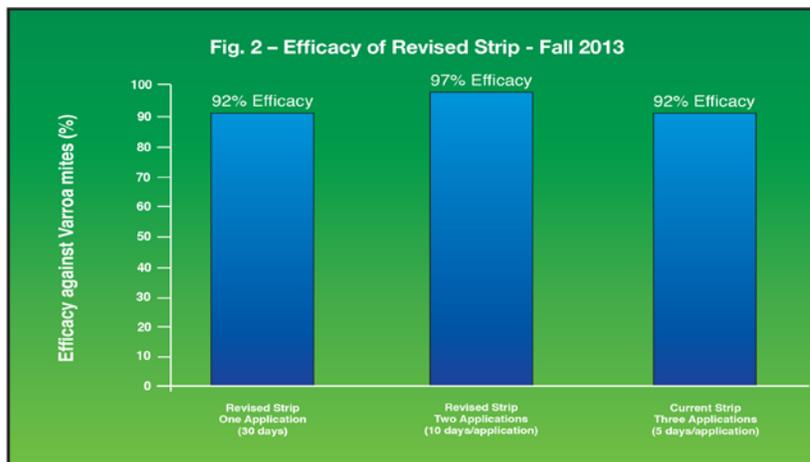


3. Field trial results using the revised insert strip:

- a. Heavily infested 10-frame bee colonies (a mix of single and double stacked colonies) with an average Varroa mite infestation of 9.7% in the USDA Red Rock, AZ bee yard were treated with the revised insert strip for 14 days. An 86% efficacy was obtained with only one treatment (refer to Figure 1 below). Honey samples were collected before application, at 1 week, at 2 weeks and after 5 weeks...no residues of the active ingredient were detected. Normal bee activity in the hive was observed with no adverse effects on the bees or brood.



- b. Varroa mite infested 10-frame single bee colonies with about a 3% mite load in Saskatchewan (Ministry of Agriculture hives) were treated with the revised strip for 30 days (refer to Figure 2 below). A 92% efficacy was obtained with one treatment. Additional sets of hives were treated with 2 applications of the revised insert strip at 10 days each and 3 applications of the current strip at 5 days each. Efficacy was 96% and 92% respectively. Normal bee activity in the hive was observed with no adverse effects on the bees or brood.



- c. Heavily infested 10-frame double stacked bee colonies with about a 10% Varroa mite load in Alberta (Provencal Agriculture and Rural Development hives) were treated with the revised insert strip for 30 days. An 80% efficacy was obtained with one treatment (refer to Figure 3 below). Additional sets of hives were treated with 2 applications of the revised insert strip at 10 days each and 3 applications of the current strip at 5 days each. Efficacy was 97% and 94% respectively. Normal bee activity was observed with no adverse effects on the bees or brood. Note: The bee colonies used in this study were severely stressed and the number of bees in the colonies was very low. The researchers commented that it was difficult to place the insert strips in association with the remaining bees which reduced the typical bee to strip contact required for effective control. They feel this may have resulted in the lower than expected efficacy in the one application treatment. The most interesting observation was that all of these weak colonies survived.



4. Proposed amendment to the existing label text – Attached please find a revised copy of the HopGuard container label. The changes are highlighted in yellow. To avoid confusion in the market place when the new strip is introduced, we would propose to add the Roman numeral II after the brand name HopGuard (i.e. HopGuard II).

We at BetaTec Hop Products fully support the request by the nation's beekeepers to change the insert strip so that it is easier to apply the insert strip and be efficacious with only one application. The evidence from the field trials presented above clearly show this change to the Section 18 is warranted. I have also attached a letter from Dr. Gloria DeGrandi-Hoffman, Research Leader, USDA-ARS, who also supports this amendment request.

Should you have any questions or need additional information, please do not hesitate to let me know.

Best regards,

Lloyd Schantz
Executive Vice President
BetaTec Hop Products, Inc.