



PAUL R. LEPAGE  
GOVERNOR

STATE OF MAINE  
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY  
BOARD OF PESTICIDES CONTROL  
28 STATE HOUSE STATION  
AUGUSTA, MAINE 04333-0028

To: Board of Pesticides Control Members  
From: Mary Tomlinson, Pesticides Registrar/Water Quality Specialist  
RE: FIFRA Section 18 recertification request for use of HopGuard II to control Varroa mites in honey bee colonies  
Date: March 13, 2015

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This request to seek recertification of Maine's 2014 FIFRA Section 18, 14-ME-01, for the use of HopGuard (potassium salt of hop beta acids), to control Varroa mites in honey bee colonies, is submitted at the request of Tony Jadcak, State Apiarist. Varroa mites continue to be a major pest of honey bees in Maine.

Approval of this request will ensure beekeepers will continue to have another control option available in lieu of other products to which mites are resistant, as well as provide an organic alternative for use during honey production. HopGuard II, extracted from hops (*Humulus lupulus*), has demonstrated miticidal activity. In vivo studies have shown that HopGuard II strips are effective in killing Varroa mites without harming bees.

According to the registrant, the EPA has pushed back the approval date for the Section 3 label to October, 2015.

The attached recertification package includes the following documents for your review. Please let me know if you have any questions.

1. 2014 Final Report and 2015 Amendments – Section 18 HopGuard II
2. Letter of support from Tony Jadcak, Maine State Apiarist
3. Letter of support from John Forte, BetaTec Hop Products, Inc.
4. Draft Maine Section 18 HopGuard II label with use directions
5. HopGuard II container label
6. HopGuard II application pictogram

**FIFRA SECTION 18 EMERGENCY SPECIFIC EXEMPTION  
FOR THE USE OF HOPGUARD II TO CONTROL VARROA MITES IN  
HONEY BEE COLONIES IN MAINE**

**2014 Final Report**

**File Symbol: 14-ME-01**

Tony Jadczyk, Maine State Apiarist  
Mary Tomlinson, Maine Pesticides Registrar

Maine Board of Pesticides Control  
Maine Department of Agriculture, Conservation and Forestry  
State House Station 28  
Augusta, Maine 04333-0028

March 13, 2015

**Section 18 Emergency Exemption 2014 Final Report  
for Use of HopGuard II (potassium salt of hop beta acids) to Control  
Varroa Mite, *Varroa destructor*, in Honeybee Colonies in the State of Maine**

This is a Section 18 Specific Exemption final report in compliance with § 166.32, Reporting and recordkeeping requirements for specific, quarantine, and public health exemptions.

The Varroa mite is a widespread pest in honeybee colonies, affecting adult bees and reducing honey production in Maine. HopGuard II, containing potassium salt of hop beta acids, is an effective alternative among available control options, being an effective miticide while not affecting colony behavior.

**(1) Total colonies treated and total quantity used under the exemption:**

During the period of April, 2014 to December 31, 2014, approximately 2070 honey bee colonies were treated with HopGuard II (Beta acids) throughout Maine. This estimate is based upon the sale of 127 kits (42 50-strip kits and 85 24-strip kits), for a total of 4,140 strips, sold in the state during the period and an application rate of two HopGuard II strips/hive. The total amount of active ingredient used was 12,192 grams (2100 strips at 1.92 g A.I./strip + 2040 strips at 4 g A.I./strip).

**(2) Discussion of effectiveness of the pesticide in dealing with the emergency condition:**

The efficacy of HopGuard II for Varroa control was consistent with USDA and BetaTec reports.

**(3) A description of any unexpected adverse effects which resulted from use of the pesticide under the exemption:**

There were no reports of adverse effects related to treatment of hives with HopGuard II in 2014. Beekeepers were advised to refrain from treating hives in cold weather when bees are in tight cluster based on 2012 experience.

**4) The results of any monitoring required and/or carried out under the exemption:**

Random inspections immediately following HopGuard II treatment verified good Varroa control. Subsequent treatments were warranted for hives actively rearing brood.

**(5) A discussion of any enforcement actions taken in connection with the exemption:**

No enforcement action was carried out under this exemption.

**(6) Method(s) of disposition of a food crop, if required to be destroyed under an exemption:**

No disposition was required.

**(7) Any other information requested by the Administrator:**

No other information was requested by the Administrator.

**Amendments to 2014 FIFRA Section 18 Emergency Specific Exemption  
for the 2015 Use of HopGuard II to Control Varroa Mites In Honey Bee Colonies in Maine**

The following revisions have been made to Section 18 Emergency Specific Exemption, 14-ME-01, for use of HopGuard II, in 2015.

40 CFR 166.20(a)(3): Description of Proposed Use

**(v) Total number of honey bee colonies to be treated:**

The number of potential colonies to be treated is estimated at 10,000 based upon previous use.

**(vi) Total amount of pesticide proposed (active ingredient and product):**

A maximum of 240 kg (529.11 lbs.) A.I.; a maximum of 60,000 strips is expected to be used.

Assuming that 100% of the 10,000 honey bee colonies in Maine will be treated with six strips (two strips per brood chamber) up to three times per year (usually spring, summer and fall); a maximum of 60,000 strips may be used. If 100% of the honey bee colonies in Maine are treated, then the total amount of hop beta acids applied in Maine will be 240 kg (60,000 strips x 4 grams of potassium salt of hop beta acids per strip), which is equivalent to 529.11 lbs.



STATE OF MAINE  
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY  
DIVISION OF ANIMAL AND PLANT HEALTH  
28 STATE HOUSE STATION  
AUGUSTA, MAINE 04333-0028

WALTER E. WHITCOMB  
COMMISSIONER

E. ANN GIBBS  
ACTING DIRECTOR

PAUL R. LEPAGE  
GOVERNOR

February 11, 2015

Mary E. Tomlinson  
Pesticide Registrar/Water Quality Specialist  
Maine Board of Pesticide Control  
28 State House Station  
Augusta, ME 04333

Dear Ms. Tomlinson,

On behalf of Maine's beekeeping industry and the agricultural commodities that rely upon honey bees and beekeepers for crop pollination purposes, I support the Section 18 Emergency Exemption for HopGuard II (beta acids) that was granted by the US-EPA April 23, 2014 and expired December 31, 2014.

Hopguard is an effective Varroa mite treatment that provides control consistent with studies conducted by the USDA and the registrant, BetaTec Hop Products (a division of John I. Hass, Inc.). The product provides beekeepers with an alternative Varroa control that is both valuable for mite resistance management and an organic Varroa mite treatment alternative.

A repeat of this Section 18 Emergency Exemption is necessary so beekeepers have an alternative Varroa treatment option in lieu of materials that now have wide-spread resistance (Apistan, CheckMite) in addition to an organic Varroa mite control that can be used while bees are producing surplus honey.

A healthy beekeeping industry is essential for agricultural production in Maine and the U.S. for honey production and pollination purposes. Thank you for considering this matter.

Sincerely,

Anthony Jadczyk  
State Apiarist



5185 MacArthur Boulevard, NW  
Suite 300  
Washington, DC 20016-3341  
Tel: (202) 777-4800  
Fax: (202) 777-4895

November 13, 2014

Mary E. Tomlinson  
Pesticide Registrar/Water Quality Specialist  
Maine Board of Pesticides Control  
28 State House Station  
Augusta, ME 04333

Dear Ms. Tomlinson

BetaTec Hop Products (a division of John I. Haas, Inc.) is actively working with USDA-ARS to bring to market HopGuard®II (a Beta Acids rich fraction) for the control of the Varroa mite in the beehive. We fully support the Maine Department of Agriculture's request for a Section 18 emergency exemption for the use of our product.

BetaTec Hop Products, Inc. has committed to provide sufficient product, properly labeled, for this emergency use when it is granted by the EPA. We have submitted a Section 3 application to the EPA and would expect approval in 2015.

We thank both the Beekeepers Associations and the State of Maine for their support in this endeavor. If you have any questions of me, please do not hesitate to let me know.

Best regards,

A handwritten signature in black ink, appearing to read "John N. Forte". The signature is fluid and cursive, with a long, sweeping underline that extends to the left.

John N. Forte  
Vice President  
BetaTec Hop Products, Inc.

## EMERGENCY EXEMPTION USE DIRECTIONS

### EPA FILE SYMBOL XX-ME-XX

**STATE:** Maine

**CHEMICAL:** Potassium Salt of Hop Beta Acids (HopGuard®II)

**CROP / SITE:** Honey Bees / All counties in the state of Maine

**PEST:** *Varroa destructor*

**EFFECTIVE:** Month Day, 2015 to December 31, 2015

### PRECAUTIONARY STATEMENTS

Product may cause eye irritation – flood eyes with plenty of water if contact is made with eyes. Wearing protective eyewear when handling treated strips will reduce the potential for eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or smoking tobacco. Remove and wash contaminated clothing before reuse.

### PERSONAL PROTECTIVE EQUIPMENT

Applicators must wear chemical-resistant gloves when handling treated strips.

### DIRECTIONS FOR USE

Package - Strips must be applied at the rate of three half strips per 2 lb. or 3 lb. package of adult worker bees. Cut strips in half and attach three half strips to the top of package so that the strips are hanging within the package. Place bees in the package after the strips are attached. The bees should remain in contact with the strips for at least 48 hours.

Colony - Strips must be applied at the rate of one strip per five deep combs covered with bees in each brood super or for example two strips per ten frame brood super (chamber) when all the combs are covered with bees. Strips are to be placed only in the brood chamber (not in the honey super). Folded strips must be opened and hung over one of the center brood frame with one-half of the strip on each side of the frame. If using a second strip, apply it to an adjacent center frame about four inches away from the first strip. Strips must be placed hanging between frames, and within the colony cluster, and not laid on top of the frames. Leave the strips in the colony for 30 days. Retreat, as necessary, up to three times per year.

A maximum of three applications per year (six strips or approximately 24.0 grams of potassium salt of hop beta acids) per ten frame brood super (chamber) is allowed. This limit includes all applications to the package (if applicable) and to the colony. Application timing (usually during spring, summer or fall) should be based on the levels of Varroa mites observed in the colony. Users may not take honey and wax from the brood chambers, only from the honey supers. For optimal results, apply HopGuard®II when little to no brood is present in the colony.

The use directions must be in the possession of the user at the time of application.

Any adverse effects resulting from the use of HopGuard®II under this emergency exemption must be immediately reported to the Maine Department of Agriculture (toll free 1-800-242-7535).

### Storage and Disposal

Unused strips should be stored in a tightly sealed, cool, dark area. Unused, unregistered product must either be returned to the manufacturer or distributor in unopened containers or disposed of in accordance with the Resource Conservation Recovery Act following the expiration of this emergency exemption.

### RESISTANCE MANAGEMENT

Using this product in rotation with another approved miticide with a different mode of action will decrease the potential for Varroa mites to develop resistance. If the strip remains in the hive more than 30 days, remove.

**Manufactured by:** BetaTec Hop Products, Inc., A Division of John I. Haas, Inc., 1600 River Road, Yakima, WA 98902  
*efficient by nature™*

**HOPGUARD® II**

(Formulated as impregnated cardboard strips.)

**SECTION 18 SPECIFIC EXEMPTION**

THIS IS AN UNREGISTERED PRODUCT AND MAY BE USED FOR DISTRIBUTION AND USE ONLY IN STATES WITH A VALID SECTION 18 EXEMPTION AUTHORIZATION. THE EXEMPTION IS EFFECTIVE FROM **XXX**, 2015 AND EXPIRES ON DECEMBER 31, 2015.

For use in honey bee colonies to control Varroa mites (*Varroa destructor*)

<b>ACTIVE INGREDIENTS:</b>	<b>BY WEIGHT</b>
Potassium Salt of Hop Beta Acids.....	16.0%
<b>INERT INGREDIENTS:</b> .....	84.0%
<b>TOTAL</b>	<b>100.0%</b>

**KEEP OUT OF REACH OF CHILDREN PRECAUTIONARY STATEMENTS**

Product may cause eye irritation – flood eyes with plenty of water if contact is made with eyes. Wearing protective eyewear when handling treated strips will reduce the potential for eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or smoking tobacco. Remove and wash contaminated clothing before reuse.

**PERSONAL PROTECTIVE EQUIPMENT**

Applicators must wear chemical-resistant gloves when handling treated strips.

**DIRECTIONS FOR USE**

**Bee Package-** Strips must be applied at the rate of three half strips per 2 lb. to 3 lb. package of adult worker bees. Cut strips in half at the fold and attach three half strips to the top of package so that the strips are hanging within the package. Place bees in the package after the strips are attached. The bees should remain in contact with the strips for at least 48 hours.

**Colony** - Strips must be applied at the rate of one strip per five frames covered with bees in each brood chamber or two strips per ten frames covered with bees in the brood chamber. Strips are to be placed only in the brood chamber (not in the honey super). Folded strips must be opened and hung over one of the center brood frames with one-half of the strip on each side of the frame as shown in the pictogram. If using a second strip, apply it to an adjacent center frame about four inches away from the first strip. Strips must be placed hanging between frames, and within the colony cluster, and not laid on top of the frames. Leave the strip(s) in the colony for 30 days. Honey bees tend to chew the cardboard strips; however, remove any remaining strips after 30 days. Retreat, as necessary, up to 3 times per year.

**Application Rate-** Strips are saturated with liquid and should be applied “as is”. Do not remove the liquid from the strip. A maximum of 3 applications per year (6 strips) or approximately 24.0 grams of potassium salt of hop beta acids per ten frames of bees in the brood chamber is allowed. This limit includes all applications to the bee package (if applicable) and to the colony. Application timing should be based on the levels of Varroa mites observed in the colony. Users may not take honey and wax from the brood chambers, only from the honey supers. HopGuard is not temperature sensitive and can be applied in the brood chamber during honeyflow. Honey supers can remain in the colony during treatment. For optimal results, apply HopGuard®II when little to no brood is present in the hive.

Any adverse effects resulting from the use of HopGuard®II under this emergency exemption must be immediately reported to your State Department of Agriculture.

**RESISTANCE MANAGEMENT**

Varroa mite populations can become resistant to pesticides. Resistance development is affected by both the frequency of application and rate/dose of application. After an application, the more susceptible pests die and the less susceptible ones survive, mate with other survivors, and reproduce. Most of the ensuing offspring inherit the parental resistance. Additional applications continue to kill only the remaining susceptible individuals. Continued reliance on a single class of miticide or miticide with the same mode of action will select for resistant individuals which will dominate the mite population in subsequent generations. In order to prevent resistance development and to maintain the usefulness of individual pesticides the adoption of an appropriate resistance management strategy is vital. The Mode of Action (MOA) for hop beta acids is undefined at this time; however, it may cause death by asphyxiation by penetration of the pest’s thin exoskeleton.

To delay resistance:

- When possible, rotate the use of miticides to reduce selection pressure as compared to repeatedly using the same product, mode or action or chemical class. If multiple applications are required, use a different mode of action each time before returning to a previously-used one.
- Base miticide use on Integrated Pest Management (IPM). This includes proper pest identification, monitoring for locality specific economic threshold and economic injury levels, record keeping, and utilizing all available control practices (cultural, biological and chemical).
- Maximize efficacy by following all label instructions including dosage and timing of application.
- Continually monitor treated populations for development of miticide resistance and report suspected resistance to local extension specialists.

- Contact your local extension specialist for additional pesticide resistance/management recommendations and/or IPM recommendations for your specific location.
- For further information or to report suspected resistance contact your local extension specialist.
- Remove strips if still in hive after 30 days.

#### **RESTRICTIONS**

- For in-hive use only.
- Maximum rate = 2 strips per brood chamber per application (i.e., one strip per five frames covered with bees).
- Remove remaining strip(s) after 30 days.
- Do not use HopGuard®II more than 3 times per year.

#### **STORAGE AND DISPOSAL**

Unused strips should be stored in a tightly sealed, cool, dark area. Unused, unregistered product must either be returned to the manufacturer or distributor in unopened containers or disposed of in accordance with the Resource Conservation Recovery Act following the expiration of this emergency exemption.

#### **NET CONTENTS**

Each HopGuard®II kit contains 24 cardboard strips. Each strip is folded in half and contains 4.0 grams of potassium salt of hop beta acids, and the kit contains 96.0 grams (3.4 ounces) of potassium salt of hop beta acids.

Manufactured by: BetaTec Hop Products, Inc., A Division of John I. Haas, Inc., 1600 River Road, Yakima, WA 98902

*efficient by nature™*

