



**CHEMICALS & DRUGS APPROVED FOR LEGAL USE  
IN HONEY BEE COLONIES  
FOR THE CONTROL OF PARASITES AND PESTS OF HONEY BEES**

All pesticides listed here are registered for use in honey bee colonies as of January 2000. If any material listed should lose or change its registration, or if new materials become available, a notice will be posted on the MAAREC web site at: <http://MAAREC.cas.psu.edu>. If you do not have access to the world wide web and are unsure about the registration status of a pesticide or chemical, contact your state apiary inspector or your extension specialist for the most up-to-date information on materials registered for use in honey bee colonies. It is illegal to use unregistered materials in honey bee colonies. Use only registered materials and follow label directions at all times!

*Note: In the following list, chemicals in boldface type are active ingredients. Common brand names are italicized and are followed, in parentheses, by the name of the company holding the product registration.*

**AMERICAN FOULBROOD**

**oxytetracycline**

*Terramycin*<sup>®</sup>

Terramycin Soluble Powder is used for the prevention of European and American foulbrood. This product is available in a 6.4-oz packet. The package directions can be confusing; to determine the correct application amounts, follow these directions:

- The legal dose is 200 mg, three times, at 4–5 day intervals.
- One package contains 10 grams (10,000 mg) of Terramycin.
- $10,000 \text{ mg} \div 200 = 50$  treatments per package.
- $50 \text{ treatments} \div 3 = 17$ , so one 6.4-oz package treats 17 colonies three times each.

The package calls for one teaspoon of Terramycin Soluble Powder per ounce of powdered sugar. Use the following calculations:

- One level teaspoon of Terramycin = 200 mg, or one treatment.
- Each 6.4-oz package contains 50 treatments, so mix one package with 50 oz (just over 3 lbs) of powdered sugar. Store in a tightly sealed container. (Exposure to air or moisture will break down Terramycin.)
- The dosage per colony is 2 tablespoons of this mixture, given three times, 4–5 days apart (for a total of 600 mg per colony). Spread two tablespoons of the Terramycin mixture over the end of the top bars in the hive body with the most brood.

Preventative treatments can be applied to colonies in the fall after honey supers are off and again in the spring **45 days** before putting honey supers on.

Premixed Terramycin formulations:

- Terra Brood Mix*<sup>®</sup> (Mid-Con)
- Tetra Bee Mix*<sup>®</sup> (Dadant)

*Terra Patties*<sup>®</sup> (Mann Lake)

*Terra Pro*<sup>®</sup> (Mann Lake)

*Terra Brood Mix or Tetra Bee Mix.* These products are identical. This is premixed Terramycin and is used in the prevention of American and European Foulbrood. It takes the guesswork out of how much Terramycin and sugar to mix together. For both products, the dosage is 2 tablespoons, three times, 4–5 days apart. Spread the Terramycin mixture over the end of the top bars in the hive body with the most brood in it. Treat colonies in the fall after honey supers are off and again in the spring at least 45 days before putting honey supers on.

**EUROPEAN FOULBROOD**

Follow the directions for American Foulbrood.

**NOSEMA**

**fumagillin**

*Fumidil-B*<sup>®</sup> (Mid-Con)

The dosage is 1 teaspoon of Fumidil-B per gallon of syrup. Fumidil-B is available in three sizes:

- 0.5 gm—makes 5–6 gallons of medicated syrup (follow mixing instructions below).
- 2 gm—makes 20–24 gallons.
- 9.5 gm—makes 100–120 gallons.

The fall treatment is 2 gallons of medicated syrup per hive given after the honey supers have been removed. The spring treatment is 1 gallon of medicated syrup per hive, given at least 30 days before the honey flow.

*Mixing instructions.* Fumidil-B mixes best when added to warm water. Use 4 ounces of water per teaspoon of Fumidil-B, let it set for a few minutes until the water is absorbed, shake it, then add it to 1 gallon of prepared syrup. For a larger quantity (the 9.5-gm jar), mix with approximately one gallon of warm water and add to 100–120 gallons of prepared syrup.

## VARROA MITES

### fluvalinate

*Apistan Strips*® (Zoecon)

*Apistan Queen Tabs*® (Zoecon)

Apistan Strips:

- Wear rubber dishwashing or chemical gloves when handling the strips.
- If the honey is to be used for human consumption, do not treat colonies with surplus honey supers.
- Use one strip for each five frames of bees (deep frames or the equivalent).
- Treat all colonies within the yard at the same time; treatment is most effective when brood rearing is lowest.
- Leave the treatment in the colony for at least 42 but not more than 45 days.

### coumaphos

*CheckMite+*® (Bayer)—**section 18 only, emergency use registration**

- Wear rubber dishwashing or chemical gloves when handling strips
- Remove honey supers before application, and do not replace super until 14 days after the strips are removed.
- Use one strip for each five frames of bees (deep frames or the equivalent).
- Treat all colonies within the yard at the same time; treatment is most effective when brood rearing is lowest.
- Leave the treatment in the colony for at least 42 but not more than 45 days.
- Do not treat for varroa more than twice per year.
- Sale of **comb** honey from hives treated with coumaphos is prohibited.

**formic acid** (has E.P.A. approval)

*65% gel formulation* (Betterbee)

*90% gel formulation* (Mann Lake)

## TRACHEAL MITES

### menthol

*Mite-A-Thol*® (Mann Lake)

- Remove all surplus honey and empty supers. Honey for bee food may remain.

- Menthol treatment is 50 grams or 1/3 cup of menthol pellets or crystals, in a 7- by 7-inch screen packet.
- Place the menthol packet on the top bars immediately above the broodnest and below any winter stores. Position the packet in a back corner of the hive so it is not directly above a lot of brood. If the daily temperatures are above 80°F for more than a day or two, place menthol in a back corner of the bottom board to avoid driving the bees out of the hive.
- Menthol requires warm temperatures to vaporize and kill mites. The label says to apply treatment when temperatures reach at least 60°F. Penn State research, however, has shown that daytime high temperatures above 70°F for at least 7 consecutive days are required for good treatment.
- The recommended treatment period is 30 to 45 days.

**formic acid** (has E.P.A. approval)

*65% gel formulation* (Betterbee)

*90% gel formulation* (Mann Lake)

## WAX MOTHS

### paradichlorobenzene\*

*Fumigator*® (Dadant)

*Para-moth*® (Mann-Lake)

## SMALL HIVE BEETLES

### coumaphos

*CheckMite+*® (Bayer) - **section 18 only; emergency use registration**

- Wear rubber dishwashing gloves when handling the strips.
- Remove honey supers before application of CheckMite+ and do not replace supers until 14 days after the strips are removed.
- Remove the paper from one side of a 6- by 6-inch piece of corrugated cardboard. Cut the CheckMite+ strip in half and staple both pieces to the corrugated side of the cardboard. Place the cardboard in the center of the bottom board with the strips facing down.
- The treatment should remain on the colony for at least 3 days, but no more than 45 days.
- Do not treat for small hive beetles more than four times per year.
- Sale of **comb** honey from hives treated with coumaphos is prohibited.

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University Park, Pennsylvania

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