



## **FREQUENTLY ASKED QUESTIONS ABOUT FORMIC ACID AND MiteGone®**

### **1. How does formic acid kill mites?**

Formic acid is believed to act as an asphyxiant. However, one German researcher believes the formic fumes kill the mites (but not the bees) because the mites' exoskeletons or skins are much thinner than that of the bees, allowing the fumes to penetrate their bodies. We know it brakes or damage their foot cups so they fall of and die in pool of heavy fumes at bottom board. We also find out that those who survive become sterile and do not reproduce.

### **2. Do I need to use menthol to treat for Tracheal mites if I use formic acid and MiteGone?**

No. MiteGone will do a good job of eliminating Tracheal mites, even in colder weather when menthol will not work at all.

### **3. Can the acid and MiteGone be used in both the spring and the fall?**

Yes. There are countries in Europe, such as Denmark, that have used only formic acid for mite control. Organophosphates, such as CheckMite, and pyrethroids, such as Apistan, are not allowed in beehives. With resistance to both pesticides, acid is now successfully used twice a year In our operation since 2006 resulting in virtually zero mites see scientific evidence.

### **4. Why don't mites develop resistance to formic acid (as they do to other miticides)?**

Eventually mites may develop a resistance; however, after sixty years of use in Europe, no resistance has yet developed. Until scientists agree on how exactly formic acid kills mites, they will not be able to pin down what physiological changes in the mites would be necessary to bring about resistance to formic acid. They agree that resistance in the near future is very unlikely.

## **5. Can formic acid and MiteGone be used in conjunction with other acaricides?**

Yes. If Any Man made pesticide is still working to control Varroa mites, formic acid and MiteGone shall be used in the spring to control Tracheal mites at the same time, while killing surviving Varroa and postponing resistance. I will not use COUMAPOSE it contaminates hives.

## **6. When alternating the use of formic acid and MiteGone with another miticide, is it better to use formic acid in the spring or the fall?**

It is better to use formic acid in the spring before the main brooding season.

## **7. Does formic acid kill mites on the brood in capped cells or does it only kill mites on adult bees?**

There are conflicting reports in the literature. Brushing liquid acid on sealed brood provides good control, while others report poor control. It is better to assume that FUMIGATION Varroa control is limited to mites on adult bees, and to regard any control of mites in sealed brood as a bonus. In the case of Tracheal mites, the mites are killed in the Tracheal tubes of adult bees. There are no Tracheal mites present in the brood.

## **8. Should I expect queen losses when treating with Formic Acid and MiteGone Method?**

Queen losses and damage to the hive were observed with blast methods and the use of 85% acid and in colonies with old queens. With the use of 65% acid and a continuous low dose release method, we have experienced no young queen losses due to Formic Acid applications since 1995. Keep in mind that you should go into winter with new queens. It guarantees the best wintering results; we do.

## **9. What is the efficacy of formic acid compared to that of pesticides?**

Formic acid kills mites slowly, therefore tests before and immediately after treatment may be very misleading. Only tests before treatments in the spring and late summer will tell you how well your last treatment worked. Depending on the application method, other treatments can provide a “reduction” or efficacy of 70-100%.

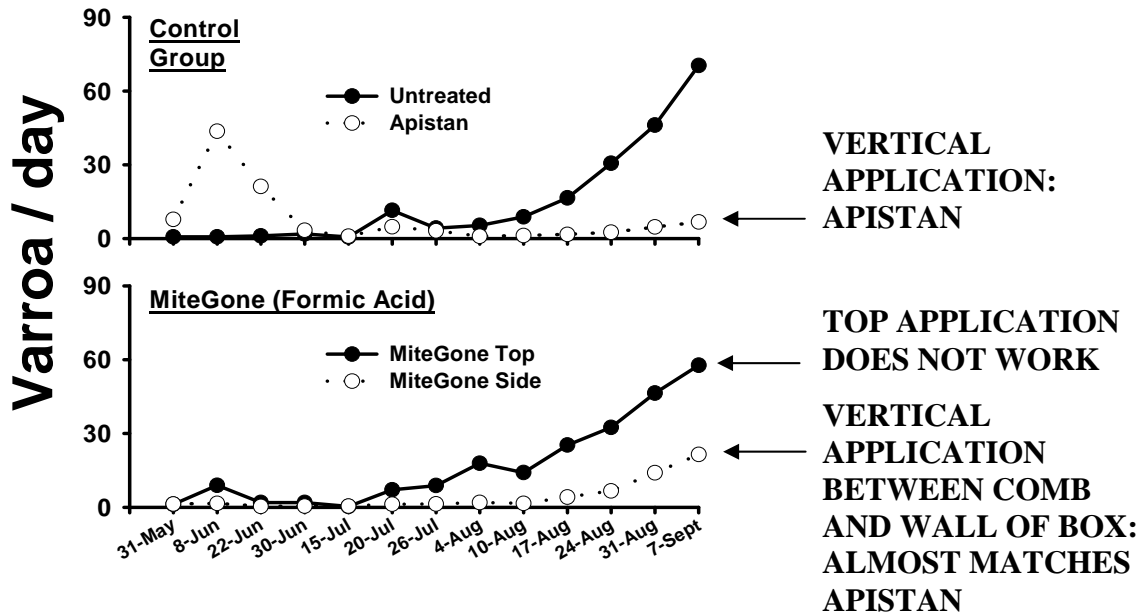
MiteGone reached 95-100% efficacy in tests in recent years and can, with two treatments a year, keep mites below the 8-10 mites’ economic damage threshold level. See Testing Charts since 2002 in the Testing section And ZERO MITE tests 2006t0 2010.

## 10. When do I have to take the pads out of the hive? What happens if I don't?

**It is not necessary to remove the pads.** We leave pads in from late summer to spring. When we reuse them by re-cutting the evaporation surfaces and re-soaking in acid, it is the best way to reuse pads. IN spring, after the acid evaporates, the bees will chew up most of the pad and throw it out of the hive. If there is pad remaining in the hive, you simply remove it the next time you work the hive or by the end of May (See Reuse of Pads).

## 11. Can I put the MiteGone pads on top of the frames?

**No you cannot** put the pads on top of the frames because the capillary-gravity principle will not work in the horizontal direction. The bees will chew up the pad and glue it up with propolis. See the graph: the solid circle in the lower graph represents the application of MiteGone on the top of frames. **It does not work.**



12. Can I pre-fill pads in my honey house? Are prefilled pads available?

## HOBBY KITS DK-20/22:

**READY TO BE FILLED or FILLED with 65% Formic acid and USE**



MiteGone has properly designed packaging of 20/22- 5” pads in dry kits. They have been tested for ten years. The key is to fill already cut pads inserted in plastic bags snuggled tightly in a strong box, where pads cannot move or be crushed by their own weight. 2 Liters of acid 2.2 kg / 5 lbs. by weight is taped into kits locally. The bag & box is sealed and turned sideways and upside down.

**RULE OF THUMB IS ONE 5” PAD FOR EVERY 5 FRAMES COVERED WITH BEES. Do not treat empty frames in August; move colony into one box or nuke.**

**TREATMENT USAGE IS VERY SIMPLE:** In two high colonies, full of bees, put three pads in at the end of August. Leave them in until mid April. Throw the old pads out and put two new pads in. Remove these by the beginning of June.

**DK-20/22** (is the number of 5” long pads in kit. Next manufacturing batch will have 22.)

**Kit was designed;** for the hobby market and a beekeeper **with 4 hives** wintered in 2 deep boxes.

**For one year treatment:** He will use 3 pads in August and 2 in April on all 4 hives

For the beekeeper **with 2 hives** the kit will last 2 years.

For a beekeeper **with one hive** it will last 4 years.

**The kit will treat:** 7 hives of 2 boxes of bees with 3 pads.

10 hives in one box with 2 pads, or 20 nukes of 4-5 frames with one pad.

**Kits are available:** around the world by small pocket mail. In 1, 2, 3, 4 kits in one package  
In Canada & US in boxes of 9 Kits and bundles of 2, 4, 6 boxes of 9 KITS by FEDEX.

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**WITH THE CANADIAN and pending USA registration the kits are available from our agents filled.**

## **DK-162 For Side liners, Commercial operators. Suitable for foreign labor.**



KITS are made of hard boxes lined with a poly bag, with 5” pads cut at both ends open so no one can install them wrong. Each KIT will contain 162 - 5” pads, and will treat 54 hives with 3 pads and 81 with 2, depending on the amount of 5” pads used per hive:

**REMEMBER: One 5” pad for every 5 frames of bees. Do not treat empty boxes.**

See instruction for your climate and or type of operation For example: (Almond pollinator)

<http://www.mitegone.com/howto.asp>

**COMMERCIAL BEEKEEPERS:** All you do is **TRAIN ONE RESPONSIBLE PERSON:** To thin acid to 65% (in Canada & California 65% is available) and scale 40lbs. 18.18kg of acid into KIT. Fold the bag same way as it came roll it tightly to seal this end. Close and tape the box. Roll it several times on sides & up side down to fill all pads. After filling; the KIT with acid will weigh 42lbs/18kg. Transport each to bee yards in own sturdy plastic latch box available at: WALMART Sterilite bar code 7314992410 half box or 7314 900 8893 full height of dry kit with latching lid, and strong handles to carry KITS for dispensing into hives. All your helper needs is: tooth picks, gloves and respirator. Pads don’t drip. Buying a bundle of 12 kits will treat 972 colonies with 2 pads, and requires 2 barrels of acid At a single treatment cost of less than 3 dollars.

**SIDE LINE BEEKEEPER:** From agents kits are available filled in full height latch box. **with 32 two story hives** for one year; use 3 pads in August and 2 in April.

**With 40 single hives;** use two pads in August and April.

In 3-5 frame nukes one pad will do.

**Anyone with 16 or more hives** should use DK-162 with 162 five inch pads.

Buying treatment for 2 years at \$1.48 a pad or yearly cost of \$ 7.40 per hive, while using DK-20/22 will cost \$2.25 a pad or yearly cost of \$ 11.25 per hive.

**when buying one box and including an average cost of Formic acid.**

**KITS are available** in single boxes anywhere in world by air or ground via Canada post. In Canada and USA: KITS are available also **in bundles of 4, 8, 12, KITS by FEDEX**

### **13. I live in a subtropical or Tropical climate, when should I treat?**

In subtropical climates, select the driest period for treatment. For example, in Florida, the best time to treat is mid-October and in mid-May. In Tropical climate is the same but you may extend the treatment to whole year. (See tropical instructions.)

## **14. Can I use MiteGone in the fall/late summer instead of pesticides?**

- In temperate climates start the fall treatment as early as August after the honey is off? The outside temperature will not affect the MiteGone applicator. The graph in section 11 showing the placing of pads on the top and side shows MiteGone's use starting on May 27 applying the acid for twenty one days to June 14. At that time, Kelowna's temperature reaches highs of 30 degrees Celsius or 90 degrees Fahrenheit; this temperature did not affect the success of the treatment.
- Apply the pads to the hives in the early morning to avoid the midday heat.

## **15. I have a high infestation of mites and / or my mites are resistant to pesticides. What should I do?**

Generally, authorities agree that Formic Acid kills mites in a way that the mites should not become resistant to. In lay terms, if you hit a mite with a hammer, there is no way the mite can become resistant to it; therefore, keep hitting the mite with acid. The acid will kill 70-80% of the mites being born in each generation. Treating with acid long enough will reduce high infestation levels.

In standard Langstroth boxes, or in Dadant or Shallow boxes, treatment can be extended by pulling the pads out of the hive after 19 or 20 days and by re-cutting the evaporating surface and re-soaking the pads in acid. You can also replace the pads after 30 days with new pads for an additional 21 day treatment. You may increase the number of pads used, too (See Treatment Selection).

## **16. How do entrance and bottom “gadgets” affect the Formic Acid treatment with MiteGone?**

As long as these entrance “gadgets” like; entrance reducers, pollination gates, and pollen inserts do not fully restrict the entrance and ventilation, they can be used. We recommend their use to create a “tray” out of the bottom board collecting and retaining the heavy acid fumes; they are actually beneficial to the treatment as mites that fall to the bottom board also fall into a pool of heavily concentrated acid fumes and die there. **The slanted wooden pollen insert is ideal for this function. Tilting the hive back can also be used as an option in dry climates. Screened bottoms should not be used as they leak acid out of hives and sealing them is often very difficult, but the ventilation must be at the bottom (See Hive & Equipment).**

## **17. How do I treat my nuclei or hives of other sizes?**

The rate of evaporation is directly related to the size of the evaporating surface. 1"x3/8" surface evaporates 1.5 grams of acid each day. The total amount of acid required is directly related to the size of the hive.

The standard Langstroth box and its shorter version like the Dadant or Shallow, when full of drawn comb, all have a relatively similar space between the combs so in combination with a standard Langstroth box they are considered to be a standard box for treating with MiteGone. Alone, three Dadants or three Shallows are equivalent to two standard boxes.

A four frame nuclei in half a standard box will do well with one pad. For baby nukes, use a 1" corner cut off at 30degrees, and sit it on bottom board or hang it up in PVC 2"or 3" tape.

## **18. Why should I use a cutting box and a knife to cut the pad? Why can't I shear the pad?**

If you use any type of shear to cut the pad you may tear the wrapping and you will crush the pad destroying the ends of the capillary tubes preventing effective evaporation of acid. The cutting box acts as a guide for your knife allowing you to easily cut the pad at the right place and avoid damaging the pad. Be sure that you are cutting the pad with a sharp blade. **Do not move the blade up and down.**

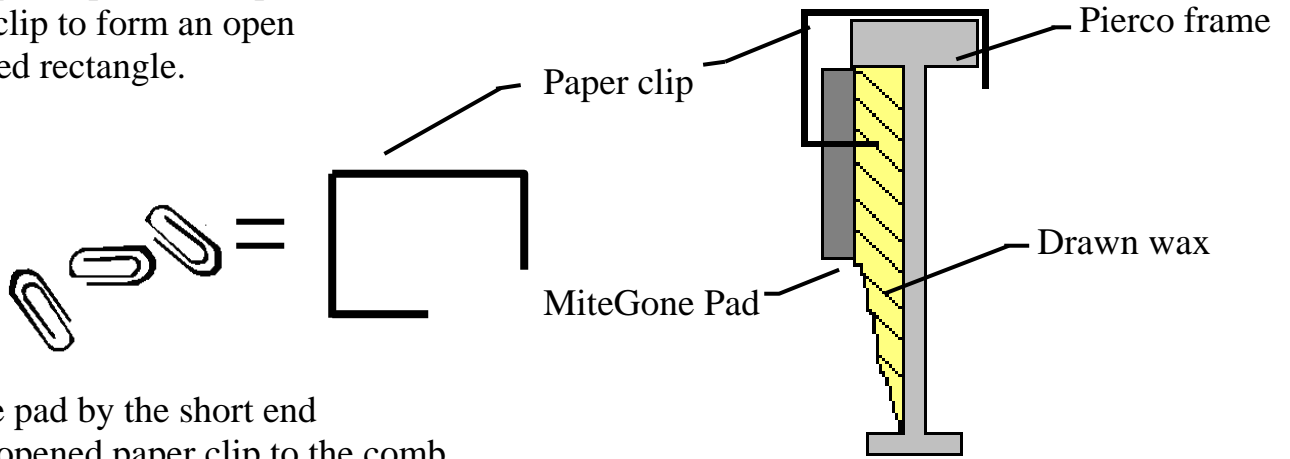


**DO NOT**  
**UNWRAP PADS**

**19. I have Pierco plastic frames with no honey and / or foundation combs only.**

Nails or toothpicks will not hold the pad to the weak wax. What should I do?

You can pin pads to the walls of the super or, use paper clips! Unwrap a standard metal clip to form an open cornered rectangle.



Pin the pad by the short end of the opened paper clip to the comb while wrapping the long end of the paper clip around the top bar.

Sectional View of Installation