FORMICPRO

FOR TREATMENT OF VARROOSIS
CAUSED BY VARROA DESTRUCTOR IN HONEY BEES (APIS MELLIFERA)

Fight varroa and safeguard your honey.

ORGANIC VARROA CONTROL THAT PROTECTS THE QUALITY OF YOUR HONEY

WHY FORMIC ACID?

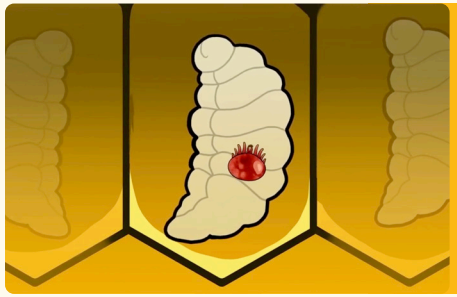
Combatting the Biggest Threat to Honey Bees

In 1997, NOD Apiary Products recognized that formic acid is a highly-effective active ingredient to combat varroa mites. NOD developed a practical, sustainable miticide for the beekeeping industry. *Formic Pro™* is specially formulated to control varroa, tracheal and tropilaelaps mites—all while protecting the quality of your honey, since it doesn't leave unwanted residues in honey, wax, or hive components.

Kill Varroa Mites Under the Cap

Formic Pro is a brood-focused treatment that targets *Varroa destructor* mites where they reproduce: under the brood cap. The formic acid vapours penetrate capped brood to protect vulnerable developing bees from varroa mites. This organic miticide also kills dispersal phase (phoretic) mites found on adult bees.

Independent studies show *Formic Pro* is an effective treatment to kill mites under the brood cap—stopping the next generation of mites from reproducing in your colony.



Formic Pro can kill
up to 98%
of dispersal phase (phoretic) mites[1]
and up to 80%
of immature mites under the brood cap[2,3]

Efficacy Studies & Sources: MAQS Technology Comparison Study: A single application of two strips of *MAQS+* (initial brand name for *Formic Pro* at time of development) had a demonstrated efficacy of >98%. Comparatively, the natural mite mortality in the placebo group during the 21-day evaluation period was 24.6%.[1] TestApi 238-2015 Study: After treatment with *Formic Pro,* less than 20% of the immature mites were alive, compared to almost 60% in the placebo group.[2] Pajuelo Consultores Apicolas Study: Colonies treated with 2 strips of *Formic Pro* had 50% fewer varroa under the cap 33 days after treatment, and 80% fewer by 53 days following treatment. In contrast, a group treated with amitraz showed an 85% increase in varroa under the cap at day 33, and only a 50% decrease by day 53, relative to initial levels.[3]
(VanderDussen, Porter, Philip, & Cooper, 2017[1]; Mamet, 2015[2]; Gonell, et al., 2019[3])

Stressors to Avoid

All types of varroa treatment can be stressful to your honey bee colony. Take care to avoid compounding strain on your bees when planning a treatment. Some stressful factors to look out for are:

Nutritional Stress: Ensure colonies have ample food reserves prior to treatment and, if necessary, feed before treating. Do not in-hive feed during the treatment.

Relocating Colonies: Especially relevant for migratory beekeepers, moving colonies for pollination (or otherwise), is stressful on bees. It is not recommended to treat just before or directly after loading colonies onto a truck for pollination.

Extreme Heat: Hot temperatures (≥ 33 °C) during the first 3 days of treatment may lead to excessive bee, brood and/or queen loss.

Formic Pro Safeguards Your Honey

Made with certified-organic and all-natural ingredients, *Formic Pro* does not leave any residues in your honey, wax, or hive components—making it safe to use during your nectar flow. There is a two-week withholding period post-treatment. Simply leave supers in place and harvest your honey 14 days after your last day of treatment. ***Formic Pro* is a BioGro-certified product.**

CERTIFIED INPUT FOR ORGANICS
bio gro NZ CERT
5523

WHAT TO EXPECT

How do Bees Respond to *Formic Pro*?

Formic Pro is a fumigant-style treatment, which means the entire colony is exposed to formic acid vapours. Your bees will respond to treatment with *Formic Pro* in a few noticeable ways:

Bearding: Bees may display bearding behaviour, especially in stronger colonies. Creating additional space is often necessary for the bees to fan and circulate formic acid vapours throughout the hive to penetrate the brood cap.

Bearding bees will re-enter the hive during the treatment period, exposing any phoretic mites to the formic acid vapours.

Observed Dead Bees: Natural birth and death rate is 1,500 bees per day. During treatment, up to 2 cups (i.e. 1,200) of dead bees maybe observed at the entrance. The treatment may result in loss of some young/open brood.

Queen Issues:
Check for queen-right one month after application. Treatment may trigger supersedure of poorly-mated or fragile queens, regardless of age. As a fumigant treatment, the formic acid vapours can mask the pheromones of a weaker queen. It's best to wait 7-10 days after introducing a new queen to treat with *Formic Pro*.

PRO TIP

No need to remove strips immediately.

After the treatment period, used strips become inert so you can leave them in the hive until your next inspection and then simply compost.

The Benefits of *Formic Pro*

READY-TO-USE STRIPS
Formic Pro is simple and easy to apply. No mixing required.

ZERO RESISTANCE
Formic acid has been used for over 30 years without any known resistance.

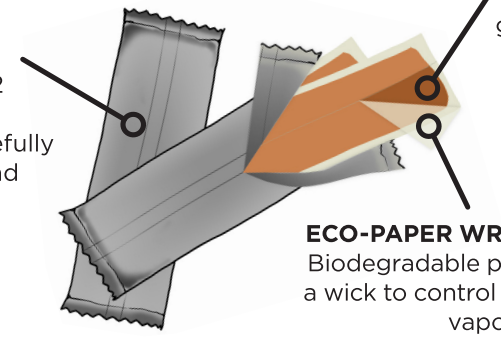
RESIDUE-FREE
Treat during the nectar flow. *Formic Pro* leaves no residues in your honey, wax, or hive components.

ALL-NATURAL & BIODEGRADABLE
Formic Pro is made with all-natural, organically-certified, and biodegradable ingredients that can be composted after use.

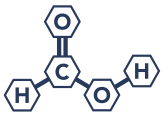
QUICK TREATMENT
Formic Pro offers fast and effective treatment. Leave in your hive for 7 days.

Formic Pro Components

OUTER SACHET: Contains 2 strips. Cut open, carefully remove and separate the strips.



FORMIC ACID GEL MATRIX: Formic acid polysaccharide gel strip, the active ingredient remains stable over time.



ECO-PAPER WRAP WICK: DO NOT REMOVE
Biodegradable paper wrap designed to act as a wick to control the release of the formic acid vapors over the treatment period.

PLANNING YOUR TREATMENTS

Success with *Formic Pro*

Formic acid works as a vapour-based fumigant and your bees play an important role in its success. When *Formic Pro* strips are placed in your hive, the colony aids the distribution of formic acid by fanning the vapour throughout the hive cavity. To help this process, there are three key factors for beekeepers to consider.

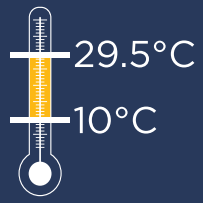
1 TEMPERATURE GUIDELINES

Between 10 °C and 29.5 °C is the required temperature range for application of *Formic Pro*. This ensures the formic acid vapours have the right conditions to take action within the hive cavity. Most of the vapouring-off happens within the first 3 days, making this an important window for planning your treatment around the weather. Avoid rain on the first day of application.

WHEN TO TREAT?

Outside daytime temperature highs need to be between 10 °C to 29.5 °C during the first 3 days of treatment.

(Nighttime temperatures do not play a factor)



2 COLONY STRENGTH

Unlike a contact treatment, *Formic Pro* is a fumigant-based varroa treatment that expands throughout the entire beehive. Your colony must be a sufficient size to tolerate the treatment and properly disperse the formic acid vapours throughout the hive.

The colony should be a minimum of 10,000 bees (covering approximately six 23cm deep frames). *Formic Pro* is not an ideal treatment for newly split or nucleus colonies. *Formic Pro* can be used with single or double brood chamber hives.

Two Looks, Same Efficacy

Formic Pro strips can vary in colour and texture. Newly-produced product will appear firm and dry with white eco-paper wrap. As the natural ingredients begin to age inside the packaging, the strips will become softer, wet, and darker in colour. This does not affect efficacy. Refer to the expiry date on your packaging to confirm dates for use.

Newer Product

vs.

Aging Product

= Same Efficacy

Keep Safety Top of Mind

Formic acid can have harmful effects if not handled properly. Always ensure you are wearing the appropriate Personal Protective Equipment (PPE) and following necessary safety procedures.

			
PROTECTIVE EYEWEAR	**FORMIC ACID-RESISTANT GLOVES** (PVC, NEOPRENE, OR NITRILE)	**CLOSED-TOE FOOTWEAR AND SOCKS**	**LONG-SLEEVED SHIRT AND LONG PANTS OR COVERALLS**

Read & Follow Label Guidelines

Follow all product application and safety instructions. Follow the manufacturer's instructions for your PPE. **See complete user safety procedures in product package leaflet.**

APPLYING FORMIC PRO

Fast and Effective Varroa Treatment

Formic Pro is specially formulated to target varroa mites where they reproduce: under the brood cap. When two strips are placed above the centre of the brood nest, formic acid reaches the entire colony to kill varroa mites and protect your developing brood.

7 DAYS

Apply 2 strips of *Formic Pro* above the centre of the brood nest.

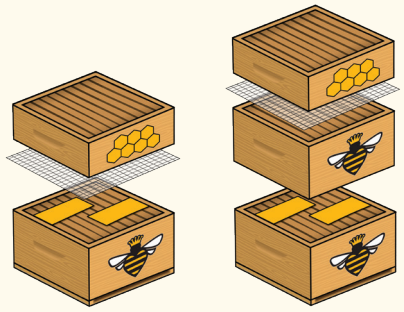
- **Leave for one week.**
- **No Peeking.** Do not disturb the colony during the treatment period.
- **Do not remove the eco-paper wrap.** It acts as a wick.

Simple Dosing and Easy Application

Manufactured in ready-to-use strips, *Formic Pro* takes the guess-work out of dosing and application of your varroa treatment. The dose for *Formic Pro* never changes: always use two strips above the centre of the brood nest. The treatment can be used for single or double brood box configurations with 8 or 10 frame equipment. It is recommended to treat your entire apiary at the same time.

Formic Pro is formulated for use as a two-strip treatment. Treating your hives with only a single strip will not penetrate the brood cap and will result in lower efficacy.

Single vs. Double Brood Box:
For single or double brood box, place strips on the top bars of the frames of the lower box. When treating a single brood box, add a honey super to give your bees room to expand. Adding a honey super to double brood box is recommended for large colonies. Can be used with or without queen excluders.



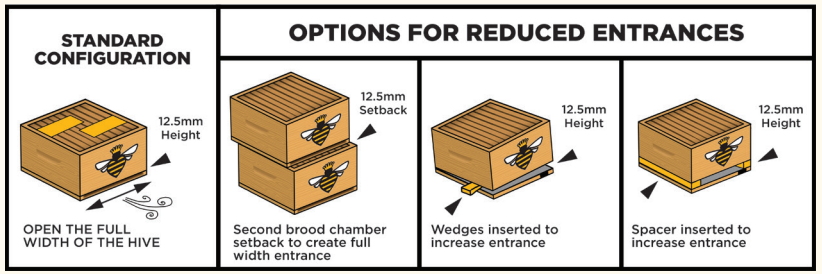
3 PROPER VENTILATION

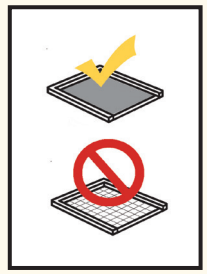
Providing adequate ventilation during your *Formic Pro* treatment is essential to maintain efficacy and ensure survival of your colony. Follow the ventilation guidelines to give your honey bees the right balance of fresh air while allowing the formic acid vapours to target varroa mites in your hive.

Maximize Entrance Ventilation: For wooden bottom boards, open the full width of the hive to a recommended minimum of 12.5mm high. With plastic bottom boards, open the full width and to the recommended height, remove entrance reducer or triple disc system. If using custom bottom boards with limited entrances, set back the second box by 12.5mm to allow fresh air access. Upper entrances can be left open but are not seen as additional or sufficient ventilation sources.

Close Screen Bottom Boards: Screen bottom boards must be closed off to contain vapours and retain efficacy. Ventilated floors and roofs are not a replacement for fully open entrances.

See next page for additional ventilation recommendations.





PRO TIP

Protect your honey bees year-round.

Formic Pro can be used anytime of the year, subject to temperature and colony condition/strength. Allow for a minimum of one month between applications.

PREPARING YOUR HIVES

Monitoring for Varroa Mites

It's important to regularly check your colony's mite load throughout the beekeeping season.

You need to assess colony mite count pre- and post-treatment to determine efficacy. Your post-treatment monitoring should be done 21 days after the first day of your *Formic Pro* application.

It is recommended to perform monthly checks of varroa mite levels for all colonies. Ongoing monitoring can mitigate reinfestation from feral bee colonies or untreated neighbouring colonies.

What's Your Treatment Threshold?

When to treat for varroa mites is based on your region and the time of year. Treatment thresholds—the tipping point for when varroa control is necessary—depends on colony strength and number of varroa mites found during monitoring. You can look up treatment thresholds by your state or territory, or contact your local bee inspector or association to find out.

For Australian beekeepers, scan the QR code to learn more about managing varroa mites and recommended treatment thresholds for your area.

Hive Configurations

An entrance that is the full width of the hive must be provided, typically the bottom board entrance, with a minimum height of 12.5 mm. The bottom entrance must be fully open for the entire duration of treatment. Any restriction on the entrance into the brood chamber (e.g. reducer or mouse guard) must be removed to prevent excessive damage to the colonies.

Screen bottom boards should be closed off during treatment to prevent formic acid vapor loss. Screen bottoms should not be considered a source of fresh air as bees are not designed to move air up through the screen.

Hive Ventilation During Treatment

If you're using hive components with reduced entrances, you'll need to adjust your configuration to allow for sufficient airflow during the week of your *Formic Pro* treatment. Below are instructions for how to properly ventilate some common hive setups.

10 Frame Nuplas

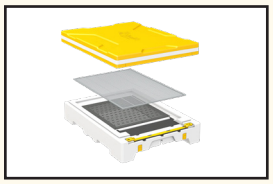
The 10 Frame Nuplas bases have two entrances, which offer sufficient ventilation. No adaptations to hive configuration are required.

8 Frame Nuplas

Since 8 Frame Nuplas bases only have one entrance, to create sufficient ventilation: **Set back second brood chamber or vent with wedges/shims.**

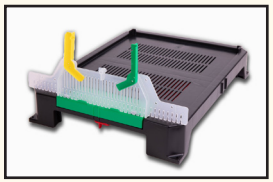
HiveDoctor

For *Formic Pro* treatment with HiveDoctor: **Remove bottom board and remove the entrance reducer or triple disc.**



Hive IQ

Ventilated floors are not a replacement for fully open entrances: **Close screen bottom boards during treatment for maximum efficacy.**



Hive Defender

Ventilated floors are not a replacement for fully open entrances: **Close screen bottom boards and remove Beast Blocker during treatment for maximum efficacy.**

TREATMENTS MADE EASY

Ready-to-Use Strips

Formic Pro is manufactured in prepared strips that make application easy. There's no mixing or measuring required. Each foil sachet contains two ready-to-use strips, just open and place both strips in a single or double brood box.

Available in three packaging sizes:

2 DOSE
(4 Strips)

10 DOSE
(20 Strips)

30 DOSE
(60 Strips)

NOD
NATURES OWN DESIGN
APIARY PRODUCTS

Healthy Bees. Healthy Planet.

At NOD Apiary Products, we take our cues from nature to develop solutions for beekeepers that are effective, sustainable, and safe. With over 25 years in the apiculture industry, our team is dedicated to honey bee health.

WHERE TO BUY

nzbeeswax
LIMITED

www.beeswax.co.nz