

## > INSTRUCTIONS FOR USE

### Key rules for an effective treatment



**There are no temperature constraints when using Apivar:**

Apivar can be used in any season when the supers are not on the hives.



**Treat all the colonies of your apiary at the same time** to avoid reinfestation.



**Apivar should be used with a dosage of 1 strip per 5 frames of bees (usually 2 strips per brood box).**

- Effectiveness is impaired with a lower dose or under treatment.
- A higher dose may increase the risk of residues in the hive.



**Leave the strips in the hive for a period of 6 to 8 weeks.**

The larger the brood area is, the longer the strips should be left in the hive (up to 8 weeks).  
Remove the strips after treatment. Do not re-use the strips.



**Scrap and reposition the strips at mid-treatment** (see page 2).



**Use the strips immediately after opening the Apivar package.** Do not store them for future use.

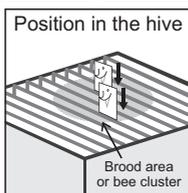
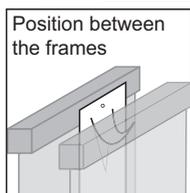
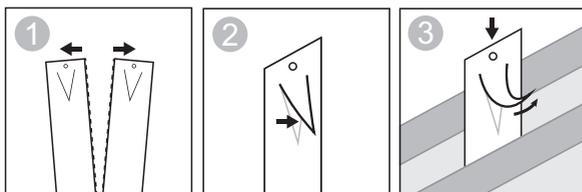


## > Placement in the hive

Remove the supers before applying Apivar. Use 2 Apivar strips per brood chamber (i.e., one strip per 5 Frames of Bees - FoB).

1. Separate the double strips.
2. Push the strip's V-shaped die-cut outside.
3. Push each strip between the topbars of two frames, down to the brood area or the bee cluster with a minimum distance of 2 frames between strips. The strips should be placed in such a way that the bees can have free access to both sides.

Alternatively, the strips can be hung by the hole in the V-shaped die-cut, using a small nail or toothpick.



FoB	≤ 5	6-10	11-15	16-20
Strips	1	2	3	4

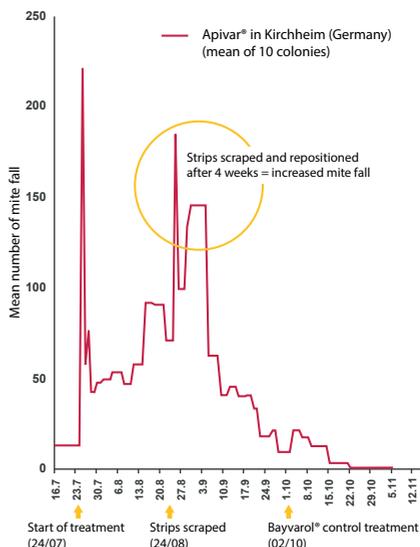
## > Repositioning and scraping the strips to improve Apivar efficacy

As shown by the results of a study conducted in Germany in 2018, scraping and repositioning the strips at mid-treatment can significantly increase the daily mite fall. A second peak of mites falling during the treatment is observed after 4 weeks, day of scraping and repositioning.

**The systematic scraping at mid-treatment (and possible repositioning, if the bee cluster has moved) increases the number of direct contacts between the bees and the strips, thereby improving the effectiveness of the treatment.**

This 10 hives apiary has been followed at Kirchheim (Germany) in 2018. The treatment begun on 07/24/ for two groups. On 08/24, strips have been scrapped in the same time and repositioned at the center of the bee cluster. After, a control treatment (Bayvarol®) have been applied on 10/01.

Reference - Bienen&natur (08.2019). Feldtest mit Apivar. PD Dr. Peter Rosenkranz et Thomas Kustermann.



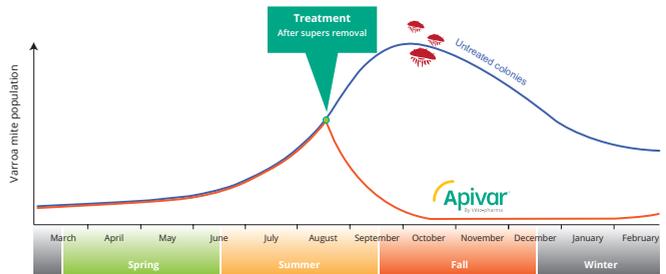
## > How to measure Apivar efficacy?

### > Apivar's slow-release technology

It's normal not to always see high mite fall during the first days of treatment. Varroa mites fall during the entire duration of treatment, and that is why we must wait for the end to measure its effectiveness.

An extended-release treatment like Apivar, delivering the pharmaceutical active ingredient for several weeks, makes it possible to cover several cycles of emergence of varroa mites, and therefore to control the infestation for a period of time.

#### Varroa population modeling with Apivar



It is important to measure the Varroa infestation of the colony **BEFORE** and **AFTER** treatment to properly assess the effectiveness.

- For example, if the infestation is high at the end of the treatment period (example: above 2 mites per 100 bees), even if the treatment is more than 95% effective (which is usually the minimum expected for a treatment in beekeeping), at least 500 varroa mites may remain in the hive at the end of the treatment. Had the initial mite counts been lower, 95% efficacy would have been enough to ensure successful overwintering of the colony.
- Infestation may be variable within the same apiary (there can be 10 times more varroa mites in the most infested hive, compared to the least infested hive in the apiary), and varroa mite numbers may vary from year to year. By considering the graph below, we can see that a the same treatment schedule is not appropriate for each beekeeping year, and that we must adapt our treatment strategy according to an infestation monitoring carried out throughout the year.

#### Variation in varroa of infestations from the same apiary in Alsace, between 2010 and 2014.<sup>1</sup>



The threshold of 3200 to 4200 varroa mites has been described in the bibliography as being a level of infestation during the season potentially leading to economic loss for the beekeeper (lower production and increased risk of mortality).<sup>2</sup>

1- BALLISA, (2015) *Infestation Varroa en Alsace, Intervention à l'AG d'ADA Franche Comté. Chambre d'Agriculture Régionale d'Alsace*

2- DELAPLANE, K S; HOOD, W M (1999) *Economic threshold for Varroa jacobsoni Oud. in the south-eastern USA. Apidologie 30: 383-395.*

## Recommended integrated pest management strategy against varroa mites

- ✓ Regular monitoring of mite infestation starting in spring (minimum 4 times per year).
- ✓ Monitor before and after treatment.
- ✓ Use monitoring results to choose treatment. Treatment during brood break in winter (with a different active ingredient.) may sometimes be necessary in case of heavy infestation.<sup>1</sup> Ask advice to apiary inspector or extension specialist.
- ✓ Stay informed about local varroa mite thresholds.
- ✓ Rotate brood comb at least every 2 or 3 years with new comb or foundation.
- ✓ Treat all colonies in an apiary at the same time.
- ✓ Rotate mite treatments (using different active ingredients).
- ✓ Read and follow all product label instructions directions for use of your varroa mite treatment, including dosage and duration of treatment (1 strip for every 5 frames of bees for 6 to 8 weeks for Apivar®).



1 - Coordination in Europe of integrated control of Varroa mites in honey bee colonies - FAIR CT97-3686 - APPENDIX VI to Final Technical Report for the period from 98-01-01 to 99-12-31

## A question about Apivar?

Our US Technical Adviser Phil Craft will answer to your questions:  
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