

METHOD TO CONTROL VARROA (RESUME OF OUR EXPERIENCE)

YEARS from 2000 to 2006

- Colonies in brood less state once only, obtained by trapping the queen for 4 weeks
- Queens trapped in cage during the first 10 days of September
- Treatment performed after 24 days, in the first days of October
- Queens released on the 28th day.

Number of varroa mites fallen in the first day: from 2000* to 3000*.

2007 (a particular year, warm winter, anticipated spring, 2 treatments, in brood less state, performed)

1st brood less state: queen trapped for 24 days:

- Queens trapped in cage on July the 8th **leaving the honey super in place to let the bees store honey and removing the queen excluder, in this way the queen will not feel oppressed during the hottest hours.**
- Honey super removed before the treatment.
- All queens were released and the treatments were performed on the same day: the 1st of August, after 24 days of trapping.

Treatment performed with drops of oxalyc acid (recipe: 100gr oss./1000 gr sugar/one litre of water)
5 cc each favus with bees, dripped for more than half on the port honeycomb slats and the rest on bees (oxalic distributed trickling sideways compared to honeycombs)

Beehive Numbers of varroa mites fallen from the first day to the twelfth day

N°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°
3	1500*	414	75	29	13	5	4	0	1	2	0	0
5	1670	247	72	34	17	10	4	2	1	1	2	0
6	1800*	600*	66	50	57	31	17	11	9	10	2	2
7	1400*	350*	38	24	22	9	6	0	2	3	2	0
8	1800*	600*	47	34	27	12	8	9	3	2	2	0
10	1100*	----	----	----	332	64	24	12	16	11	3	2

2nd brood less state obtained by trapping the queen in cage four weeks:

- Queens trapped on October the 1st
 - Treatment on October the 25th
 - Queens released on October the 29th
- Treatment with oxalic acid dripped (solution 100 gr oss. / 1000 gr sugar / 1 liter of water),
5 cc per honeycomb covered with bees, dripped for more than a half on the port honeycomb slats and the rest on bees.

(oxalic distributed trickling sideways compared to honeycombs)

Beehive Numbers of varroa mites fallen from the first day to the eleventh day

N°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°
3	207	137	33	21	1	----	----	2	----	2	0	----
5	775	278	20	7	1	----	----	0	----	1	0	----
6	337	292	44	16	2	----	----	2	----	0	0	----
7	260	308	146	76	10	----	----	4	----	1	1	----
8	116	186	96	62	16	----	----	12	----	5	2	----
10	359	356	104	55	11	----	----	14	----	1	4	----

* approximate numbers

---- days in which no count was performed

Taking into consideration the hive # 5: 1670 varroa mites fell on the 1st day, a total of 2060 varroa mites fell until the 12th day (considering that varroa doubles from month to month) and considering that for about 2/3 of July varroa could not multiply due to the brood less state, we can foresee the number of varroa mites possibly reached on August the 1st: $(2060: 3 \times 2) = 1373$, we add $2060 + 1373 = 3433$ varroa mites (number of varroa mites beyond which we would have the crisis of the colony the next month). Thanks to the two brood less states performed, one short in July and a longer one at the end of the season in October, I was able to sanitize my colonies.

NOTE: making a comparison of the years 2000 to 2006 with 2007, you notice that in 2007 varroa reached the same numbers 2 months before, if I waited one month more in intervening, the colonies could have been compromised .

The method adopted in 2007 and in the subsequent years, 2014 included, considers 2 brood less states: one in summer (starting on July 10 to July 15) and one in autumn (starting on October 5th until October 15th). The results are excellent: varroa mite hovered at low numbers throughout the year.

When did I trapped queens?

- One time In July, immediately after the honey storing, when the bees reached the maximum growth. From this point on, because of the heat and the lack of honey storing activities, the bees decreased the brood rearing. So, that is the most appropriate time to intervene. Thanks to the total absence of brood I apply a treatment against varroa of proven efficacy in the first days of August. You should not wait until mid-August to perform the caging, varroa may have reached high numbers and as a result brood can be heavily infested and will not give healthy bees. As a consequence the colony will collapse, when the bees born among May, June and July, will die at the end of their life cycle;

- **In the fall (October), a month before the Winter cluster, another queen entrap:** I make all hives, at the same time and as soon as possible, without brood and capable of receiving the treatment against varroa very soon, in the first days of November, not in December or January, when the varroa will have done irreparable damage.

Bees from November onwards are almost still as assets and also considering breeding brood, brood rearing can occur if the temperatures are good but it is always a small amount, that won't create the future colony. On the other hand, this little brood will be full of varroa mites, newborn bees will be debilitated and unable to flicker alone. The bees have made a useless work of rearing brood and also it will be difficult to clean them from varroa after the season.

Conclusion: contain varroa mite at low numbers to maintain healthy colonies.

To sum up, targeted treatments, in total absence of brood, thanks to queen caging is the ideal condition to reduce varroa:

- One treatment in summer to hover the number of varroa, in order to avoid the damage that high numbers of them will cause. **Beware:** we are still in active season for bees so, reinfestation can happen;
- An autumn cleaning at the end of the season, easy to apply because the hive is no longer crowded with bees, perform it when bees are retreating home and there is no longer the risk of re-infestation among apiaries because of drones or looting, I consider it essential for a good awakening in the next year, especially in areas where bees go on with brood rearing and never stop. The total absence of brood planned thanks to queen caging, is helpful in breaking down varroa, in order to keep bees healthy. Moreover, it allows you to avoid the repetition of the treatments several times that weaken the colonies.

Thinking about what dates it is better to perform the queen entrap and subsequent treatment, every beekeeper will have their own opinion, in accordance with the climate in their area.

The result of this method, confirmed also by beekeepers that have adopted it are:

- Colonies full of bees each year;
- Healthy bees in the fall that can easily pass through the winter;
- Excellent recovery in spring;
- Excellent honey production;