

RESEARCH ON THE EFFICIENCY OF SOME COMMERCIAL
PRODUCTS UTILIZED IN VARROOSIS CONTROL
IN COLONIES OF APIS MELLIFERA
- the second part -

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Abstract

The present work presents an analysis of the efficacy of some commercial products used in fighting mite 'Varroa destructor' honey bee. The products that are on the market in Romania, and are accessible to all breeders. Over the course of the experiment it was observed the development of bee colonies (number of frames covered with bees at the time of inspection after the treatments most colonies), in question made a calculation concerning costs depending on the products used.

Key words: Varroa destructor, honey bee, commercial antivarroa products, treatment.

INTRODUCTION

The present work presents an analysis of the efficacy of products used in fighting mite 'Varroa destructor' in honey bee colonies. The products that are on the market in Romania, and are accessible to all breeders.

Range of products chosen are both synthetic substances and natural, and some may be used in organic apiaries.

MATERIALS AND METHODS

The experiment took place in a bee with a flock of 97 families of bees. The hives were kept on throughout the duration of the study, there were moved to the pastoral, and were not stimulated with proteic and energetic food. Duning hearth Apiary is situated in an area fair physiographically beekeeping, honeybee colonies such development cannot compare with the colonies prepared for harvest.

Bee colonies were divided into 5 groups of the experimental group and a control group. Experimental batches were composed of 18 colonies, while the control group from 7 colonies of bees. It was watched in batches as they are more homogenous, while taking into account the age, the amount of brood, respectively the number of frames covered with bees.

Experimental batches were known as:

- hives in the batch treated with oxalic acid i've labeled 'oa'
- the hives in the batch treated with Beevital Hive Clean i've labeled 'be'

- the hives in the batch treated with Bayvarol i've labeled 'by'
- hives in the batch treated with Thymo Varo San i've labeled 'ty'
- the hives in the batch treated with Varachet Forte i've labeled 'vr'

Three series were made: treatments in March, April and June, thus it was possible recording results on the development of bee colonies. The administration has been made according to recommendations from the prospectus for the use of each product.

RESULTS AND DISCUSSIONS

In the second part of the experiment was watched the effects of treatments on the development of honey bee colonies, controlling the number of fully-covered frames of bees.

In the table below is presented the development of the colonies from the control group. Media relating to frames covered in bees is 9.28 frames (in June).

Tabel 1.

The number of frames in the Control group

No. of frames Bee hive	m1	m2	m3	m4	m5	m6	m7
In March	5	5	4	4	6	5	5
In April	7	8	6	6	8	8	7
In June	9	10	8	9	10	11	8

The group treated with oxalic acid has developed very well, reaching an average of 10.5-covered frames of bees in June, meaning more than one frame in addition to the control group (9.28-covered frames of bees in June).

Tabel 2.

The number of frames in the group treated with oxalic acid

No. of frames Bee hive	ao1	ao2	ao3	ao4	ao5	ao6	ao7	ao8	ao9
In March	5	6	5	4	5	5	5	6	5
In April	7	9	7	6	7	8	6	7	7
In June	11	11	10	10	10	11	9	11	10

No. of frames Bee hive	ao10	ao11	ao12	ao13	ao14	ao15	ao16	ao17	ao18
In March	4	5	5	5	6	5	5	4	6
In April	6	7	8	8	7	6	7	6	8
In June	10	11	11	11	11	10	11	10	11

In the case of Varachet Forte, we can see a similar development of the batch treated with oxalic acid, with colonies average 10.27 bee-covered frames (in June).

Tabel 3.

The number of frames in the group treated with Varachet Forte

No. of frames Bee hive	vr1	vr2	vr3	vr4	vr5	vr6	vr7	vr8	vr9
In March	4	6	4	5	6	5	5	5	4
In April	7	8	6	8	7	8	7	7	6
In June	11	11	9	10	11	11	10	10	9

No. of frames Bee hive	vr10	vr11	vr12	vr13	vr14	vr15	vr16	vr17	vr18
In March	5	5	6	5	5	5	4	5	4
In April	8	7	7	7	8	8	8	7	6
In June	10	11	10	10	10	11	11	10	10

Commercial product Thymo Varo San (active substance being Thymol) proved to be a viable alternative for organic apiaries in fight against pub, was that the colonies development in the vicinity of batches treated with oxalic acid and amitraz.

Tabel 4.

The number of frames in the group treated with Thymo Varo San

No. of frames Bee hive	ty1	ty2	ty3	ty4	ty5	ty6	ty7	ty8	ty9
In March	6	4	5	6	5	5	5	5	6
In April	8	7	8	9	7	7	7	7	8
In June	11	10	11	10	10	11	9	9	11

No. of frames Bee hive	ty10	ty11	ty12	ty13	ty14	ty15	ty16	ty17	ty18
In March	4	5	5	3	5	5	4	3	5
In April	6	7	7	6	7	7	7	5	7
In June	10	10	11	9	10	10	10	8	10

BeeVital Hive Clean product contains different acids and essential oils, being a product recommended in organic beekeeping. Its effects can be compared with that of the product Thymo Varo San. The development was

better as families in the control group, but has not achieved the performance of other experimental batches.

Tabel 5.

The number of frames in the group treated with Beevital Hive Clean

No. of frames / Bee hive	be1	be2	be3	be4	be5	be6	be6	be8	be9
In March	5	6	5	5	5	6	6	4	5
In April	8	8	7	8	8	8	7	6	6
In June	10	10	10	8	9	10	10	9	10

No. of frames / Bee hive	be10	be11	be12	be13	be14	be15	be16	be17	be18
In March	6	5	5	5	6	6	4	6	5
In April	8	8	7	6	7	8	5	7	7
In June	11	10	10	9	10	11	8	11	9

Flumetrin (Bayvarol) in its turn led to a proper development of the family, obtaining an average development compared to experimental. Weaker development was observed at colonies with older queen.

Tabel 6.

The number of frames in the group treated with Bayvarol strips

No. of frames / Bee hive	by1	by2	by3	by4	by5	by6	by7	by8	by9
In March	6	5	5	5	4	5	6	5	6
In April	8	8	7	7	7	8	9	7	8
In June	11	11	10	10	10	11	11	9	11

No. of frames / Bee hive	by10	by11	by12	by13	by14	by15	by16	by17	by18
In March	5	6	5	5	5	5	4	5	4
In April	7	7	6	7	8	7	6	7	6
In June	10	10	10	10	11	10	8	9	8

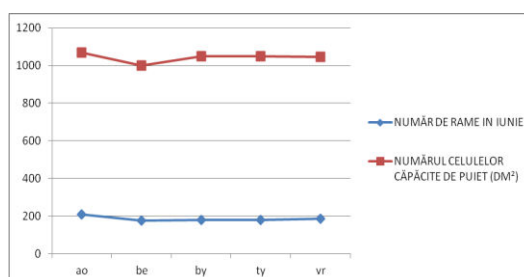


Fig. 1. The number of frames and of brood cells in June

After with emerges from figure 1. number of frames and cells of juveniles in June is the biggest at the experimental group treated with oxalic acid, followed in order by the batch treated with Bayvarol, Varachet Forte and Thymo Varo San, Bee Vital Hive Clean respectively.

Profitability of treatments

Substances used in this paper can be found on the market in Romania, available to all beekeepers. It was performed a calculation on the cost of a single treatment administered to a family of bees, because in each case is not necessary to repeat.

The most common container of oxalic acid is a pound. Its price ranges from different operators, the average being about 40 lei. It shall be prepared in a solution with water and sugar to a litre of oxalic acid being 35 grams. Are receiving an average of 40 milliliters per hive, meaning that reach 25 hives. Which means that you can treat over 700 bee families, cost per family reaching somewhere from 5-6 bani. 200 grams of sugar costs about 60 bani, which means that for each family adds a cost of 2.4 bani. Thus, the cost of treatment with oxalic acid for a single administration on a beehive is 8 bani.

On the market in Romania BeeVital Hive Clean can be found in almost all cases in 0.5 liter bottle. For this price is on average 80 lei. Considering that it is given an average 15 millilitres for a hive, you can splash about 33 of colonies. Therefore, the costs of reach 2.4 lei for each family.

The price of such Bayvarol boxes on the market in Romania is quite high, roughly 170 lei. A fully-developed family receives four lanes, so the cost for every beehive is 34 lei.

Thymo Varo San lies in the form of pills. In a box 20 pills. The price of the boxes is 30 lei. Considering that the average of a pill is enough to treat the 12 families, a box will be sufficient for the treatment of 240. The cost for a single beehive reaches 12.5 bani.

Varachet Forte is perhaps the most frequently used product on the market in Romania. Sold in a bottle containing 6.5 ml. The package is also 60 strips of paper that are dripping the solution due to the treatment. The price of such a package is on average 38 lei. Considering that it is sufficient for 60 hives, the cost for every beehive is 63 bani.

According to the calculations above, for each family of bees, it is the order of the profitability of each treatment:

Oxalic acid-0.08 lei;

Thymo Varo San-0.12 lei;

Varachet forte-0.63 lei;

BeeVital Hive Clean-2.4 lei;

Bayvarol strips-34 lei.

CONCLUSIONS

As you can see the results are visible from each batch after performing experimental treatments. The largest number of frames covered in bees was recorded at colonies treated with oxalic acid. The number of other experimental batches-covered frames of bees has surpassed that of the group. Treatments against Varroa mites are necessary, so getting a growth not only of the colonies, but the default and hive productions.

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