



ORGANIC VARROA-TREATMENT IN SEMI- AND PROFESSIONAL BEEKEEPING



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ORGANIC VARROA-TREATMENT ON LARGER SCALE

Varroa destructor was first found in Denmark in 1984. But the mite was not distributed all over Denmark until the beginning of 1990. Since then the Danish Beekeepers Association has promoted the organic control of varroa. With organic treatment we mean the use of the organic acids and bio-technical methods (drone brood removal, queen-exclusion, heat-treatment an so on).

Over the years the varroa-treatment strategies has been well adopted by the Danish Beekeepers. 89% (2001) of the beekeepers are using the organic methods. We developed a „safe strategy“ – which means fighting varroa „wearing both belt and braces“. The Danish Beekeepers Association recommended to make a three-step treatment: **Spring treatment** with drone brood removal, **summer treatment** after

last honey harvest with formic acid and **late summer treatment** using oxalic acid trickling.

Some beekeepers with a large number of colonies have over the years claimed that these methods are to time consuming and preferred the use of the pyrethroid Bayticol on wooden sticks.

This examination is an interview with 20 semi- and professional beekeepers

(managing more than 100 colonies) using the safe strategy. The aim was to find out:

Why are these beekeepers using the organic methods?

How have they adopted the organic methods to their beekeeping practise?

What kind of alterations have they made to fit the strategy to large-scale beekeeping?

QUESTIONNAIRE 2005 (METHODS AND RESULTS)



As an ongoing development of the strategy for fighting varroa mites, the Danish Beekeepers Association is evaluating the organic way of fighting varroa every 2nd or 3th year. The „safe strategy“ for the smaller beekeepers (less than 100 colonies) has been used for almost 20 years with success. From the large scale beekeepers point of view these methods may cause problems, due to the

time consumption. Therefore we interviewed a number of larger beekeepers using the organic way of fighting varroa. We asked the beekeepers questions about fighting varroa. Since this is an ongoing study, we will just mention some of the interesting aspects of this survey.

Formic acid and oxalic acid

The questionnaires points out that beekeepers on larger scale are going for methods that are rapid in use. None of these beekeepers are using the time-consuming methods such as lactic acid spraying, queen exclusion or heat treatment. Also drone brood removal is very restricted in use (25%). Some of the beekeepers answers that drone brood removal is used under certain conditions, such as single colonies with high number of mites within the season. The beekeepers were also asked about the use of volatile oils. Presumably none are using this method since this kind of product is not well known in Denmark. *The main varroa treatment is the use of evaporation of formic acid right after the honey harvest in August – September and then a late treatment in October with oxalic acid trickling, combined with a spring treatment.*

Formic acid is used by all beekeepers, but in different ways. The use of the kråmerboard is the most predominant method. Used by 60,0% of the beekeepers. The use of free formic acid is also common used. Several beekeepers remarks that the free formic acid is used only in nearby apiaries. The nassenheider evaporator is used by 15,0%.

Oxalic acid is used by all beekeepers except 2. Spraying of oxalic acid was used some years ago, but is not used anymore. Trickling is the dominant method. Evaporation of oxalic acid was only used by one



No. of colonies	Formic acid				Oxalic acid	
	Free formic acid	Kråmerboard	Nassenheider	Other	Trickling	Spreying
3225 (avg: 161)	45,0 %	60,0%	15,0 %	5,0%	90,0%	5,0%

Dronebrood removal	Nuc produktion	Monitoring the mite debris		
		Never	Once and while	Very often
25,0 %	70,0%	20,7%	60,0%	15,0%

Why do you fight varroa in the organic way ?	
Because I have always done it.	30,0%
Because the advisory system (the association) recommend this.	30,0%
Residue free honey	100,0%
Longterm strategy	50,0%
Mite resistance against drugs	45,0%

beekeeper. This beekeeper used this method as the only treatment.

70,0% were producing nucs, to secure the number of colonies wintering out in the springtime. Several of the beekeepers pointed out that the production of nucs not are because of varroa, but solely to have a surplus of colonies in the springtime, in years with heavy winter losses.

Counting the mite downfall is not a big issue for the large scale beekeepers. 20,7% does never look for natural mite downfall. They can't see the necessity. Their methods and strategy is satisfying. 60% are looking for mite downfall when it is necessary. But they never count mites. They look at the debris and make a very fast monitoring calculation „situation under control“ or „situation might get out of control“. Spot test are used. Several are only looking on sealed drone brood, opening a few cells.

60,0% claims that they have never seen damaged colonies or bees. 25,0% claims that they do have single colonies now and

then, that have damages due to varroa.

65,0% do realise that the organic varroa treatment is more time consuming than the use of drugs. Several of the beekeepers haven't answered the question, since they never have used drugs, and therefore can't compare. Some of the beekeepers even claim that there is no extra time consumption.

The reason for using the organic methods is very clear. All (100%) are doing this to ensure honey as a clean natural product without any kind of residues. 50% are doing this due to a long-term strategy and 45% are doing it because concerns regarding resistance to drugs.

75% of the asked beekeepers have never considered the use of any kind of drug as a possibility, not now or in the future. This was underlined very clearly by the beekeepers in the questionnaire. 10,0 % didn't know if they might change strategy.

THE CHALLENGE OF ORGANIC BEEKEEPING IN THE FUTURE

The challenge for the organic varroa-treatment is to find cheap, fast and easy to handle varroa-treatment methods for the large scale beekeepers. Large scale beekeepers

doesn't use time on even good methods, if they are time consuming. The Danish large scale beekeepers have simplified the varroa strategy - using only formic acid (kråmerboard) and oxalic

acid trickling (spring and autumn treatment). These methods are regarded as sufficient on the long term. Therefore nearly no time is used on monitoring mites.

The beekeepers realise that they are using

more time on these methods, but have realised that this is the way to keep honey clean and as a natural product on the long term. This questionnaire will continue the winter 2005.