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Varroasis in the Mediterranean area and its economic implications

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SUMMARY - This paper briefly recalls the global situation of beekeeping around the Mediterranean area, number of countries (17), bee colonies (9,500,000) and number of beekeepers involved (540,000). The author refers to the difficulty of having relevant data, if any, to appreciate the real economic implications of beekeeping and agriculture from the point of view of pollination. The cost of the control is incredibly variable, the incidence of stock-rebuilding is difficult to appreciate. The evolution of the situation in the last few years is bringing beekeeping to a dangerous situation with no official effort tending to organize chemical *Varroa* control with an alternation of the active ingredients in the treatments. The cost of the officially registered control products when they are not state supported is maintaining the habit of the great majority of bee-owners of trying to use any ingredient, even inadequate, disregarding the long-term effect on their hives and residues in bee-products. The result is a decrease of the bee-stock and the number of small beekeepers mainly in the southern part of the area. The related bee-diseases - virosis, chalk brood, etc. and their economic influence are only mentioned here.

Key words: Countries involved, bee losses, costs of treatments, rebuilding of beestock.

RESUME *- "La varroose dans la région méditerranéenne et ses implications économiques". Cette communication rapide rappelle brièvement la situation globale de l'apiculture dans la zone méditerrannéenne, le nombre des pays (17), des colonies d'abeilles (9.500.000) et celui des apiculteurs concernés (540.000). L'auteur mentionne la difficulté d'obtenir des données valables, si même il en existe, pour apprécier les implications économiques pour l'apiculture et l'agriculture par le biais de la pollinisation. Le coût de la lutte anti-*Varroa *est incroyablement variable et l'incidence du renouvellement du cheptel est difficile à apprécier. L'évolution de la situation dans les dernières années amène l'apiculture sur une dangereuse pente sans un effort officiel pour organiser la lutte chimique avec une alternance du principe actif dans les traitements. Le coût des produits officiellement agréés, quand ils ne sont pas subventionnés par l'Etat, maintient l'habitude de la grande majorité des possesseurs d'abeilles d'essayer et d'utiliser n'importe quel ingrédient, même inadéquat, sans tenir compte des effets à long terme sur leurs ruches et des résidus dans les produits apicoles. Le résultat est une diminution du cheptel apicole et du nombre des petits apiculteurs, principalement dans la partie sud de la zone. Les maladies connexes comme les viroses, le couvain plâtré, etc, et leur influence économique sont simplement mentionnées.*

Mots-clés*: Pays concernés, pertes d'abeilles, coût des traitements, renouvellement du cheptel.*

Beekeeping in the Mediterranean area

To begin with, I have to say that we do not have any reliable data on beekeeping - even on the bee stocks - for the countries on which I tried to report. The official data from the different ministries or from international agencies are not very reliable and I had to use my own personal statistics which seemed less outdated.

The following countries, outside the European Union, have been considered: Albania, Algeria, Cyprus, Israel, Lebanon, Libya, Malta, Morocco, Syria, Tunisia, Turkey, ex Yugoslavia. In the European Union: France, Greece, Italy, Spain and even Portugal have been included because some important parts of these countries are under Mediterranean influence.

The beekeepers of the first group, 290,000, are mainly small-holders or hobbyists using traditional hives, they were reputed to run as many as 3,600,000 colonies. Between 1985 and 1990, in most of the countries of this group, with the exception of Israel, Turkey and Yugoslavia, after a quick spreading of the mite, an average of 80% of colonies died from varroasis. Rapidly, with a quite good information and help from FAO, EU, APIMONDIA, GTZ or other countries and private initiatives, it was possible to introduce a chemical control using different products, mainly bromopropylate, amitraz, coumaphos and fluvalinate, after which the bee-stocks were gradually re-building.

For the second group, 250,000 beekeepers, due to better information and the permanent research work in their own Bee-research Stations, the bee losses were never as important. Though a good many old small beekeepers decided to give up and, probably, the number of hives was decreasing, consequently, instead of the 5,900,000 colonies, a better figure should be around 5,400,000 at the end of this period.

In fact, an FAO-EU and APIMONDIA joint study, conducted by very good experts in 1990-1991 up to April 1992 could summarize its findings as follow:

(i) At various levels, varroasis and related diseases are not adequately dealt with in any of the concerned Mediterranean countries. Within the EU these are: France, Greece, Italy and Portugal.

(ii) The beekeepers are successfully fighting the mite and the infection rate is kept at low levels. But the bee-diseases related to varroasis are significantly increasing (Albania, France, Syria, Turkey).

(iii) The "related diseases" have already become a major problem for beekeepers. A link with the mite attacks is strongly suspected (France, Greece, Italy, Spain, Yugoslavia).

(iv) The control of the parasite is still critically insufficient (Algeria, Egypt, Lebanon, Libya, Tunisia, Morocco).

(v) Only Israel, since fluvalinate has been used, was reporting a normal bee-situation.

At the end of 1994, resistance to certain active ingredients (mainly fluvalinate) used to control the mite became evident in some countries. Already suspected and feared in 1991, this problem turned out to be very acute in Italy and seems to be gaining ground in France. Not a single official service in this Mediterranean area ever tried to introduce a compulsory policy of using alternatively different active ingredients to avoid the disagreement of a quick resistance opening the way to important difficulties in controlling the mite from the year 1995.

Cost of treatment

Chemical means

This point is very difficult to deal with. We have to say something about the products which have been in use. Some twelve different active ingredients have been widely used by the beekeepers and still are. With them, coumaphos, cymiazol, bromopropilate, fluvalinate, acrinathrine are the most popular and gave birth to registered specialities or unofficial treatments in different countries.
Beekeepers, finding the prices of registered control means too high, found and used the same active ingredients in plant protection products which made a certain control for a tenth of the price.

So the cost for *chemical control* varies from 5 US dollars per hive if you use the registered products to 80 cents if you use some home-made treatments derived from plant protection products, work included. The total expenses for the mite control products and the labour for the treatments in this area is probably around *15 millions of US dollars*.

Three facts can be noted:

(i) Most of the commercial beekeepers (12,000) operating more than 3 million hives never used anything other than home-made recipes, mainly because they were currently facing a lot of financial difficulties with very low honey-prices on the market. An exception has to be made when the control-product prices were subject to some official support.

(ii) Most of the hobbyists used the official treatments.

(iii) Many beekeepers, in this area, tried a lot of other products, some of them being dangerous for the bees and liable for the loss of their colonies.

Bio-chemical control methods have been recently introduced in the area but very often are not in great favour among the commercial beekeepers according to the rise of labour, except for the breeders.

Rebuilding the bee-stock: there again we are badly in need of representative statistics. In all countries, since the arrival of the mites, even when the control has been successful, the beekeepers have to do a lot of extra-work to keep their bee-stock at an even level. In some ways it has already been the case before the mite infestation. This was due to various causes in the different countries but probably the main reason being the non-intentional effects of insecticides spraying (i.e. Egypt, France, Greece, Spain).

Changing queens and making nuclei or swarms cost a lot of money and labour. Between 5 and 10% of the bee-stock has to be reared each year to keep the task force at its normal level. 5% should be credited to *Varroa* problems. Theoretically the expenses involved should be the equivalent to the value of 500,000 bee-colonies. That is another *25,000,000 US dollars*.

In conclusion, we can easily figure the annual economic direct implication of varroasis to *40,000,000 US dollars*.

Decline in the number of bee colonies and beekeepers

In the absence of any reliable statistics, as a consequence of the factors we just presented, the bee-stock has significantly decreased and a large number of small-scale beekeepers, mainly working with traditional hives, gave up.

This is very unfortunate, particularly for the areas where we have an important rural depopulation. Special technical and financial support should be given to the people in such situation, beekeeping being very often a good answer to rural exodus and with no great money investment.

The decrease of bee-hive numbers had an adverse effect on agriculture, particularly in seed and fruit growing areas. Other farmers have economically suffered from the bee losses. The deficiency in pollination for the insect pollinated grown plants has not been correctly evaluated. It is even more difficult to evaluate the economic impact on the environmental welfare where so many wild flowers are dependant on the bees for cross-pollination (Borneck and Merle, 1989; Corbet *et al.*, 1991).

We think that Governments and Ministries of Agriculture should be aware of all this and pay definitively more attention to beekeeping and beekeepers.

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