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ECTD_029

TITLE: Beekeeping in the People's Republic of China

SOURCE: *Bee World* 41(1): 4-8

DATE: 1960

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BEEKEEPING IN THE PEOPLE'S REPUBLIC OF CHINA

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It is very difficult to obtain detailed information about present-day beekeeping in China; this article is intended to serve as an interim report until further information becomes available. It is based mainly on two recent articles published in the Russian journal *Pchelovodstvo*, which I am indebted to Miss K. Lloyd and Mr. G. Nichols for translating. One, by Yu. M. Evsyukov (1959) is based on a Chinese article, published after the Pan-Chinese Beekeepers' Conference in December 1957; the other is a 'Letter from China' written to *Pchelovodstvo* by Ma Deh-Fen (1958).

Beekeeping with the indigenous Chinese bee (*Apis indica cerana*) has been practised in China for more than three thousand years, and it has remained practically unchanged throughout this period. Kellogg (1937), describing contemporary beekeeping in the province of Fukien, pointed out that this was aptly described by a passage written about A.D.232: 'In the process of rearing wild honeybees for domestication at home, the people make a wooden box in which several holes are bored. Inside the box they place some honey and catch the bees. These bees, after a day or so, will fly out and bring materials for making honey. The amount made depends upon the prosperity of the year.'

With the importation of European races of bees (mostly Italian and Russian), more profitable beekeeping became possible, and when some of the beekeepers learned how to maintain colonies of these bees in their new surroundings, and to manage them so that they produced a honey surplus, the foundations of modern Chinese beekeeping were laid. The recent exports of Chinese honey (page 6) may well prove to be the beginning of an export drive which will have some considerable impact on beekeeping in both honey-importing and other honey-exporting countries.

BEE FORAGE

Ma Deh-Fen reports that China is very rich in bee plants. In the

subtropical zone litchi (*Litchi chinensis*) is grown, and it is said to yield so much nectar that it falls like rain if the tree is shaken. The honey is of high quality, with a good aroma; it is in great demand on the international market. In the basin of the river Yangtse, large areas are occupied by milk vetch (*Astragalus*) and the tallow tree [*Sapium sebiferum*], which also secrete much nectar. In the north there are lime trees, which give a white honey, very fragrant and of high quality. In the eastern part of Central Mongolia are large areas of buckwheat, which produce nectar the whole day long. Other nectar-bearing plants include 'dragon's eye', peach trees, persimmon, cotton, sesame, rape and many other Cruciferae; the area sown with them comprises more than 2.4 million hectares. The buckwheat sown in the north of China begins to secrete nectar from the middle of August, and the flow from it lasts 25 days. In the south, buckwheat flowers in the middle of September, and the flow lasts more than 20 days. If the bees can be moved from the north to the south, buckwheat alone can furnish a honey harvest for more than a month.

THE BEES IN CHINA TODAY

Evsyukov reports that Italian and northern Russian races of bees have been continuously imported into China since 1913. Beekeepers then began to use hives with movable frames, and thus laid the foundations of the technique of modern beekeeping. However, the Kuomintang government and the war which followed did not produce conditions favourable for the development of beekeeping.

When the People's Republic of China was inaugurated in 1949, there were approximately 100 000 colonies of European bees in the country; today in 16 provinces alone there are some 350 000, half to the north and half to the south of the river Hwang ho. Of these 350 000 colonies, about 11% are on the state farms, 43% on farm co-operatives where beekeeping is a side-line, 3% on state-run bee farms and in beekeeping co-operatives, and 37% in private ownership among side-line beekeepers.

Apart from the imported races, of which 84% are Italian and 16% are north Russian, China has about a million colonies of the indigenous Chinese race in the vast territories in the north-west and south-west of the country.

In the last two years the individual provinces have begun to pay more attention to the development of beekeeping, and some have obtained striking results. For example in the province of Shansi the number of colonies has been increased from 2000 in 1949 to 15 200, and 200 000 colonies are planned for 1962. In the province of Heilungkiang the number of districts in which beekeeping is carried on increased from 46 in 1956 to 51 in 1957, and the number of colonies from 40 000 to 50 000. In the last few years beekeeping has had more attention in the province of Hupeh, where there are at present 55 000 colonies. The majority of specialized regional farms have put their beekeeping on a firm foundation, and already maintain more than 30 000 colonies of imported races.

In view of the recent rapid growth it is considered safe to assume that the number of colonies of imported bees will increase by 40-50% annually, reaching 2 million colonies by the end of the second five-year plan in 1962. About 70% of these will be sent to the hill regions, which need extensive economic support.

YIELDS FROM BEEKEEPING

In addition to the increase in the number of colonies, there has been a

great improvement in beekeeping methods since 1949; Evsyukov gives some examples. In one farm in the province of Hupeh, the honey yield per colony rose from 25 kg. to 150 kg. and more. In one district in the province of Kwangtung, better methods of management of the Chinese bee have led to an increase in the average colony yield from 5 to 16.5 kg., and some hives gave up to 80 kg. It is estimated that the average colony yield of marketable honey will rise from the present 10 kg. to 30 kg. by the end of the second five-year plan and that the average colony yield of wax will rise from 250 g. to 750 g. It is considered that there are great possibilities in increasing the yields of honey and wax from Chinese bees by improving the methods of management.

As a preliminary estimate, Evsyukov suggests that by 1962 the honey production of China will reach 50 000 tons, and that of beeswax 1400 tons.

Ma Deh-Fen reports that his highest honey yield has been 200 kg. from one colony. He extracted honey 2 - 5 times during the buckwheat flow in 1956, and each colony gave 100 kg. or more, thus disproving a commonly held idea that 80 kg. is the greatest yield obtainable from buckwheat.

A little further information is given in a German report (Schmidt-Lamberg, 1958), which states that honey production had increased 28% between 1956 and 1958; he also states that North Vietnam is successfully following the Chinese example of developing beekeeping.

Beeswax finds exceptionally wide use in China. After the opening of the free market the cost became higher than the market price, and quality fell. This had an effect on the supply of comb foundation to the beekeeping industry and on the export of beeswax. In order to supply enough comb foundation, districts concerned must regulate their trade in wax by reducing exports and by first supplying the needs of apiaries for wax. It is necessary for bee farms to increase their wax production considerably, and also to fight for its economic use.

PRICES OF BEE PRODUCTS

Evsyukov reports that the sale price of honey has risen slightly, but that in many regions the price is still extremely low; in the province of Shansi it is lower than the price of sugar. In some regions of the provinces of Shansi, Shensi, Liaoning and elsewhere, the marketing authorities have fixed a low price of honey. People who raise the price of honey excessively may be prosecuted. In 1958 the prices of honey and wax were decreasing, although the price of bees is quite high. The Pan-Chinese Beekeepers' Conference laid down that the quality of the colonies and the time of year should be taken into consideration when fixing prices for bees. The Conference expressed concern about the low prices for honey, and recommended that the minimum average price of honey should not be lower than that of sugar. The price of one kg. of beeswax should correspond to that of 4 kg. honey, in accordance with the local conditions in each region.

In 1956 the Chinese People's Republic exported 3900 tons of honey and 354 tons of beeswax. Chinese honey is much valued in foreign markets; a ton of exported honey can provide 3.5 tons of sheet steel or 6 tons of fertilizer; a ton of beeswax provides enough currency to buy 8.5 tons of sheet steel.

POLLINATION BY BEES

Evsyukov reports that great attention is paid in the Chinese People's

Republic to the use of bees for increasing the harvests from agricultural crops. Increases in yield of about 80% are quoted for rape, sunflower, buckwheat and fruit, and also increases in the oil content of rape and sunflower seeds, and an increase of 5-12% in the yield of cotton.

ORGANIZATION AND GOVERNMENT CONTROL

The general picture which emerges from the various reports is one of many difficulties, extensive controls and — as might be expected — both successes and failures. Beekeeping was at a very low level in 1949, and Evsyukov reports that the supply of raw materials (especially beeswax) is still bad, and that in other cases also economic help from the Government is quite ineffective. Schmidt-Lamberg (1958) reports that after the failure of a nationalization experiment in Kwangtung, beekeeping is now permitted as a 'controlled private enterprise'. Whereas formerly a beekeeper was allowed to retain only 30% of his honey, he may now keep up to 65%. The hill regions need special economic support, and there the government promises 15 yuan credit for each colony; in 5 years the credit will amount to 21 million yuan [6.89 yuan = £1; 2.46 yuan = \$1].

The remuneration of beekeepers in the agricultural co-operatives is said to be unsatisfactory. At the present time there are two forms of payment: the system of fixed wages, and the system of bonus piece-work payment according to quantity and quality of work carried out. The latter is considered to be more effective, as it keeps beekeepers on the alert and gives them known guarantees on their introduction to the agricultural co-operatives.

Taxation of beekeepers in the various regions is unequal, and varies between 3 and 8%; in some regions no tax is normally paid. The Pan-Chinese Beekeepers' Conference proposed fixing a single rate of income tax for all beekeepers at 3%, new beekeeping districts being tax-free for 3-5 years.

The Conference also decided that, as a basis of policy for further development of beekeeping in China, there must be a beekeeping agricultural co-operative, since in the state farms beekeeping is only represented as a subsidiary branch. The private specialist beekeepers are to be approached from the point of view of free mutual profit, so that they are gradually drawn into the agricultural co-operatives. Concentration of a few apiaries is to serve as a basis for socialized reorganization of beekeeping. Co-operatives must allow their members to keep their own bees, providing that the business of beekeeping does not affect their main work in the co-operative.

RESEARCH

All the authors quoted emphasize that while China has great potentialities for beekeeping, scientific and technical development is still at a very low level. Ma Deh-Fen hopes that the Russian beekeeping specialists will help them. Evsyukov points out that there are as yet none of the necessary terms of reference for developing specialized beekeeping research, and that at present scientific research work must be carried out by the existing scientific institutes and specialist agricultural establishments. These include the Agricultural Academies of the provinces of Fukien and Shantung, the beekeeping sections at the state farms in the province of Hupeh and the livestock farm in the town of Tsingkow. The Academy of Agricultural Science of the Republic is to work out suitable conditions for founding a special scientific research organization for beekeeping.

Note added in proof

Information has just been received from Dr. K. Münnich in Hungary that a Beekeeping Research Institute has been established in Peking under the direction of Mr. Li Zsünj.

CONCLUSION

The items of information given here are enough to show that beekeeping in China is on the move. The Chinese beekeeping journal *Zhongguo yangfeng* is now received regularly by the Bee Research Association, and it should be possible to publish further information in due course.

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