



Az egész életen
át tartó tanulás
programja



BEST PRACTICE BEEKEEPING IN HUNGARY

The technology of a medium sized WLADIMIR-type apiary in the Northern Great Plain

1. Ecological description

The central farms of the apiary in Hungary are located between Debrecen and Hajdúböszörmény where the Hajdúság loess ridge meets the sandy soil of the Nyírség. This area has a continental climate: capricious spring, hot and dry summer, and cold winter. The loess ridge has mainly plough-lands (wheat, maize, rape, and sunflower) and has a small number of bee pastures (meadows and pastures). There are lots of acacia groves in the sandy soil areas. The distance between our two permanent farms is 2 kilometers. Hundreds of hectares of acacias can be found around the two farms in three kilometers range.

2. General description and philosophy of the apiary

Our apiary is a family enterprise. We maintain a moving apiary with 400-500 bee colonies. The four members of the family have been dealing with beekeeping for 23 years. At present, we are trading only honey as a bee product.

Two master beekeepers manage and do the most important professional work but they also do a lot of physical work. They are the drivers too. (They are not full time apiarists). There are 2-5 semi-skilled labourers who usually help in the high season. The two older members of the family take part in the administrative work and they also control the semi-skilled labourers' work.

The main goal was to produce residue free honey, treat the colonies carefully and do as little professional work as possible. That is why we changed from the 24 frame lying type Nagyboconád hive to the loading type Dadant-Blatt hive with two frame sizes 15 years ago. Now, we are testing 60 pieces of beehives with rotating frame of broodnest.

3. The hive

At present we have 450 pieces uniform, 10 frame Dadant-Blatt nests (based on an original Italian model with lower flight hole). The drawers of the honey chamber are 9 frame ones with metal spacers and fat honeycombs. There are no flight holes on the drawers of the honey chamber. The capacity of a medium- size nest is 11.34 dm², while the lower honey chamber frame's is 4.98 dm². Each drawer has its own carved number that helps in the administration. The hive bottom board is hygienic, fixed to the nest and has a pull-out flight board. The flight board has a curved shape that narrows down the flight hole. The screen of the hive bottom board is not covered, so the debris (e. g. mites) falls out of the hive. This part of the hive is open in winter too.

The screen of the bottom board and the air holes provide appropriate ventilation for the hive during transportation.

Both the nest and the drawers of the honey chamber have three metal corners that help to superimpose them on one another exactly.

The top of the hive is zinc-plated. There is a plastic Hannemann screen that separates the nest from the honey chamber if required. Bees can be cleared from the drawers full of honey with the help of the bee escape board made of veneer or wood-fibre (four pieces metal corner, or two pieces metal ring).

4. Moving, transportation

Due to the bee pastures, it is necessary to move the apiary to 5-6 different places resulting in 10-12 transports per year. We used to employ a transport company for years, but now we have a lift tail truck that can carry 165 hives, and a five-seater van with a trailer that can carry 55 hives altogether. One night is enough to transport the whole apiary, if required.

Some preparations need to be done before the transportation: an empty honey chamber drawer is kept above the nest permanently, the covers in the feeding tray are removed in spring, and the feeder is turned round. The parts of the hives are bound well by straps. The handles of the drawers of the nest help to load them. The loaded hives are strapped down tight.

5. The bee pasture

In early spring, the large gardens and orchards of the village (with fruit trees such as cherry, sour cherry, plum, apple, pear, peach) that are situated around the apiary and the underwood of the acacia grove (e.g. blind-nettle) provide plentiful pollen and sufficient quantity of nectar for the appropriate development.

In the end of April, we move the apiary near rape fields and divide it into groups of 50-80 then install them 150-200 meter from each other. The rape provides pollen for 2-3 weeks and more than 10 kg honey per colony.

After the flowering of rape ceased, we transfer back the colonies to our central farm. At this time the acacia starts flowering. In case of good weather conditions the flowering of acacia may last for two weeks. After it we move the colonies to the Zemplén, where the acacia is still flowering for 1-2 more weeks in a lucky year. The honey yield of these two acacias may reach 40 kg per colony.

In June-July we move the colonies to different bee pastures: Common Milkweed (*Asclepias syriaca*) in Bács-Kiskun; desert false indigo (*Amorpha fruticosa*) at the riverside Tisza. It is possible that the honey yield can be extracted, if it is a good year. If good bee pastures are not available then we usually feed the colonies as long as the sunflower starts flowering.

Sunflower: we often try to find large sunflower lands with different phenological phase in Hajdú-Bihar. The flowering usually lasts for 3 weeks. The honey yield may reach 20-30 kg per colony.

After the sunflower stopped flowering, meadows, pastures and hayfields are used as bee pastures and, if required, we feed the colonies in order to prepare them for wintering.

6. Honey removal

Nest extracting at the farm: the frames are always taken out of the hive by the same apiarist. Bees are cleared off the frames by shaking then mechanical brushing (battery powered). After it, the frames are put into a closed box then loaded onto a hand trolley and taken to the extracting tent that is surrounded by a plastic net and has a waterproof roof. The extractor is an axial, programmable machine that operates on 220 volts. It has a rotating basket, and can hold 8 frames altogether. An aggregator supplies power for the extractor. Usually 3-5 people work in the tent at once who are controlled by an expert apiarist.

Depending on the forage, if the honey chamber drawers are 60-70% full, an empty drawer is placed onto the nest, onto this an escape board then onto this the drawer with full of honey is placed. After 16-24 hours, bees move down into the nest and the honey drawers are ready to take. We transport the honey chambers home where they are extracted in a building made from bricks that is maintained for this reason. The drawers are placed onto a pallet (60 pieces per pallet) and transported into the storage by a fork lift truck. The honey removal work also includes the cleaning of the frames from wax. Uncapping knives or electric uncapping knives are used for opening the cells. Our honey removal tools are enameled or made of acid-resistant steel. The extracted honey is stored in 120 liter capacity plastic barrels. The wax fragments are usually removed from the honey within 1-2 days after the extraction.

7. Feeding

Syrup feeding: the syrup is a mixture of one part sugar and one part water or one part sugar and two part water. A 5 liter capacity plastic bucket with an air brake system is used for mixing the syrup. The top of the bucket has 9 holes and each one is 2 mm in diameter. These holes fit to those ones which are in the middle of the feeder.

Stimulating feeding in spring: depending on the forage, the colonies are given some sugar syrup made of one part sugar and one part water in the end of March or in the beginning of April. It can be repeated, if required.

If the end of flowering of acacia is approaching, we start feeding syrup in order to avoid the starvation of bees, so the transportation of the colonies is not urgent.

Feeding in the end of summer: the pollen yield of natural bee pastures (meadows, pastures, ditch sides) is usually enough but in case of dry weather the feeding is inevitable. At this time the colonies are fed some sugar syrup made of one part sugar and one part water 5-7 times.

When the colonies are transported to the central farm, we make sure of the quantity of the stored honey in the hives. Colonies with small quantity of stored honey are provided with some sugar cake during winter.

Feeding sugar cake (based on the quantity of the stored honey): the sugar cake is made from powdered sugar and boiled honey and water. The mixture is about 1-1.2 kg that is put into a plastic bag and flattened 2-3 cm thick. A crosscut is made in the middle of the plastic bag that allows bees to get in. The bag is placed under the sponge that covers the hole of the feeder in winter.

8. Medication

Out of the foraging season, hives are treated by such medication products that are allowed to use in organic beekeeping. According to need, the treatment with different products is repeated 4 times a year to control mites. Effective substances are: thymol, oxalic acid, formic acid.

The most important thing during the medication is that at least 10 colonies should be examined then treated in autumn. In order to examine the hives, the hygienic hive bottom board should be replaced by a tray with oil soaked white sheets in it. The following day, it is very easy to notice the mites that stuck on the oil soaked sheets.

The treatment should be done in autumn, out of the brooding season. If the average number of the fallen down mites is more than 10 then another treatment is required.

9. Honey yield

The most important honey of the Hungarian honey production is the acacia honey. The acacia honey production in the Great Plain provides the 30-50% of the annual Hungarian acacia honey yield. The sunflower provides our second significant honey yield. In a good year, its quantity is almost equal to the quantity of acacia honey. The yield of other kinds of honey (rape, Common Milkweed, linden, phacelia etc.) depends on the weather.

10. Reproduction, comb replacement

We are not planning to increase our bee colonies in the apiary, however, the colonies that have been died during the winter, should be replaced by artificial swarms. We start to produce artificial swarms from the beginning of the acacia foraging. We only use artificial combs made from self-produced wax for reproduction and comb replacement. The frames of the nests are used for three years. Combs of the honey chamber are replaced only if they get damaged during extraction.

Queens are usually replaced in every two years, but the low quality ones are culled at the age of one. Mother queens are reared in our apiary. They are descended from stock mothers that are controlled by us. Express nurse colonies are given baby larvae from the Jenter cage. After 24 hours, the larvae are taken to parent colonies where they hatch out in cages. The virgin queen is placed into a mating nuc where she can start mating with drones coming from our colonies.



1. Honey supers in the store room



2. Placing the feed bucket



3. Feeding device and queen grid



4. Loading down at night



5. Loading down in a rape field



6. Supers stored correctly



7. Opening the hive after arrival



8. Checking the hives after arrival



9. Checking the hives in acacia



10. Hives during acacia bloom period



11. Rows of hives north of the acacia wood



12. Hives north of the acacia wood



13. De-sealing with an electric knife



14. De-sealing stand with an electric knife



15. Supers in the honey harvester



16. Supers in the honey harvester



17. Harvest



18. Hygienic hive bottom (nooks at the sides)