



# The best for bees

Apikel plus bee feed



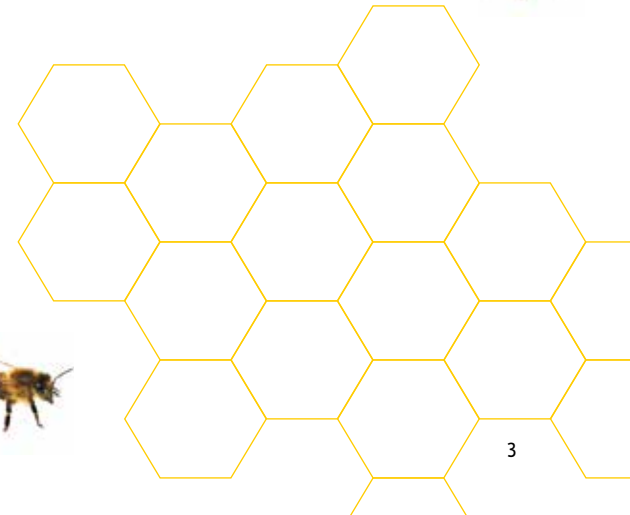


# The busy bees

Busy as a bee, as the folk saying implies. This is not by any means a coincidence. For 1 kilo of honey, honey bees have to fly a total of 250,000 km. That is around six round trips around the world. Like humans, bees need the right food to be able to work efficiently and effectively. This can be explained by the stages of development: Already during the development from egg to insect, protein intake plays a central role. Once fully developed, the same principle applies to drones, worker bees and queens: they then need carbohydrates to be able to do their work.

During the main breeding season, it is particularly important that the bees find food permanently. If not outside the hive, then in the feeder. Because only when food is available in sufficient quantities do the bees eagerly nurture their offspring. Then the bee colony will survive the next winter with many young, vital bees and sufficient food supplies.

Honey is the natural food of the bees, which they produce themselves and store for the winter as well as for gaps in the hive, but this is taken away by the beekeeper. However, bees need a constant flow of food, if this is interrupted, e.g. by withdrawal of honey by the beekeeper, the bees need a substitute. Particularly in the cold season or in the absence of honey, the beekeeper must provide replacement food to feed the bees.

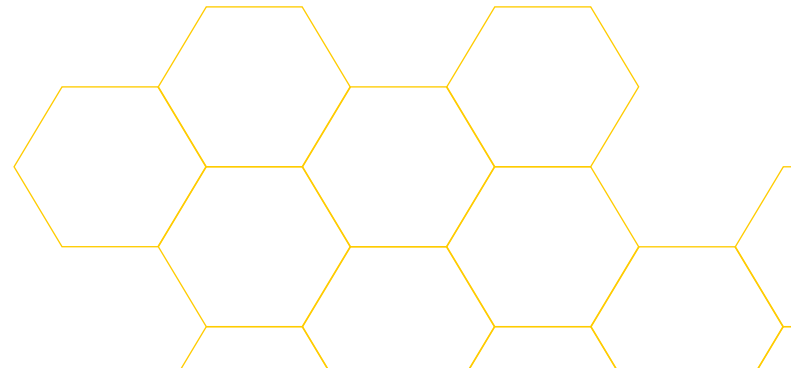


# Food plan of the bees

If we look at the menu of honey bees, the young bees eat plenty of pollen in the first few days after hatching. They need the pollen protein to build up their internal organs, such as the feeding gland, fat body and flight muscles. In addition to pollen, Apikel plus bee feed is particularly suitable as a ready-to-use single feed for honey bees. They need these carbohydrates to gain energy to produce heat and to maintain all vital functions.

Therefore, it is important for beekeepers to provide their colonies with carbohydrate-rich bee feed as a substitute for the honey they have extracted. There are various options available to beekeepers for winter feeding or gap feeding: Sugar beet-based feed syrup (fructose, glucose, sucrose),

cereal or corn starch-based feed syrup (fructose, glucose, maltose), home-made sugar solution from household sugar (sucrose). Ideal as a substitute feed is bee feed based on beet sugar, as it is most similar to honey and contains a comparatively low number of substances harmful to the intestine. In addition, self-mixed sugar solution is not recommended, as it must be inverted by the bees themselves. This costs the bees more effort and energy, which in turn shortens the bees' lifespan. This is a very important factor, especially for winter bees.





# Honey and its composition

Honey consists to a major part of carbohydrates. More precisely, a composition of different types of sugar such as the simple sugars (monosaccharides), grape sugar (glucose) and fruit sugar (fructose). To a lesser extent, it also contains double sugars (disaccharides) such as sucrose and maltose, as well as various multiple sugars (polysaccharides). In total, there are over 30 different types of sugar. Which and how many types of sugar are contained in honey depends on which plants are

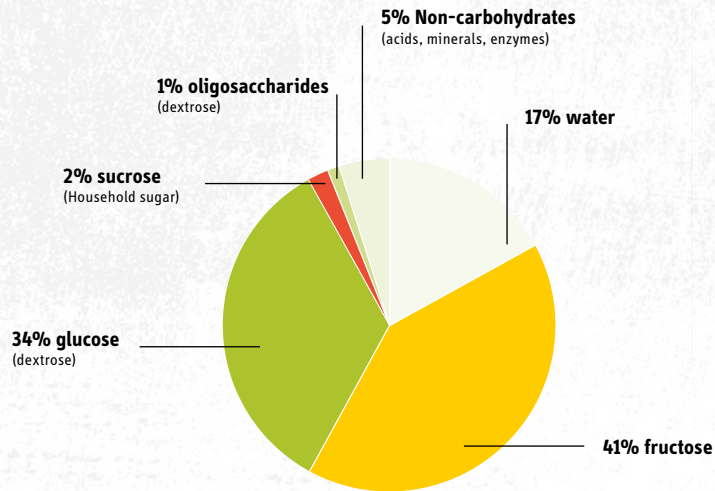
used as a source of sugar. Honey consists of about 80 percent sugar and about 20 percent water.

The number of types of honey is endless, the taste, color, smell and consistency can be very different and depend on the type of flowers from which the nectar is collected. The different nectar sources of honey give different categories such as flower honey and honeydew.



# Flower honey

Typical honey composition according to DIB '97





## The types of bee food

The most important nutrients for bees are fructose and glucose. The following is a comparison of the various bee foods.

### **HONEY**

As a natural food supply, honey is unbeatable. One of the best substitutes is a beet sugar based bee food.

In spring and summer the daily requirement of a colony is in the order of 300 – 500 g.

Depending on the sources of honey, it contains fructose and glucose, in minor units also sucrose (cane and beet sugar), maltose and other sugars.

### **SUGAR WATER – SUCROSE SOLUTION HONEY**

For many years, sugar water was the classic form of bee feeding. However, the sucrose in the sugar solution must be transformed and metabolized by the bee before it can be used as a nutrient.

The sucrose, in other words the normal household sugar fed to the bees, is largely broken down by the bees in a biological process through the addition of the enzyme invertase, turning this multiple sugar into the two simple sugars glucose and fructose.



The advantage of own, low-cost production, for example, is offset by the disadvantage of very limited shelf life due to the risk of spoilage by microorganisms that may be present in the water, for example. If slimy streaks appear, the sugar water is unusable for any further feeding. Furthermore, the preparation of the sugar solution is time and manpower consuming.

### PREPARED FOOD BASED ON BEET SUGAR

Apikel plus bee feed is a very high quality single feed based on beet sugar “Made in Germany“ by Kellmann Produktions GmbH.

Apikel plus bee feed is an inverted sugar syrup specially developed for honey bees for the optimal feeding of honey bees in gaps in the honey harvest and for winter feeding.

Apikel plus bee feed is a ready-to-use liquid bee feed, with a high fructose content and a very low hydroxymethylfurfural (HMF) value which is checked for each batch.

Apikel plus bee feed was developed specifically for honey bees. In the composition of the sugar types and the production process, all important factors such as the tendency to crystallization even at low temperatures, the compatibility, the intestinal load and the suitability as a hive gap feed and winter feed were taken into account.

Due to its increased composition and very high quality product properties, it is an ideal bee feed for intermediate and winter feeding.

Apikel plus bee feed is microbiologically stable and can therefore be stored for a long time. It can be absorbed and processed by bees very quickly. Apikel plus bee feed is certified and is produced 100% without genetically modified ingredients.

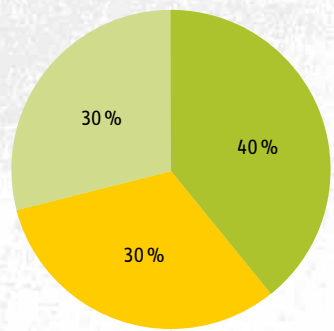
Apikel  plus



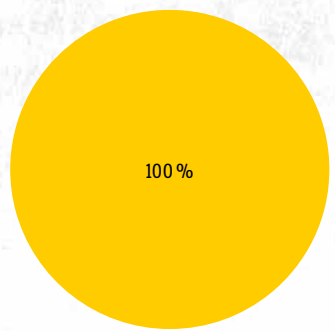
# Typical composition of dry matter of various feed syrups



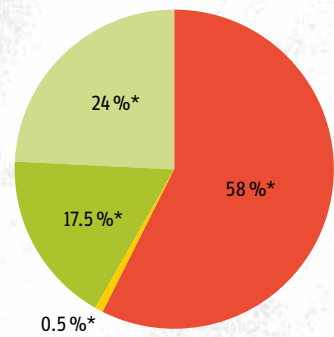
Apikel plus



Sucrose solution



The average of the wheat and corn-based syrup



■ C4 Starch base   ■ Sucrose   ■ Glucose   ■ Fructose   \*Average values from seven product data

# Apikel plus

## Single feed for bees



### PROPERTIES

- Apikel plus bee feed is a syrup especially for bees syrup specially prepared for bees
- Beet sugar based
- Tested HMF value
- Microbiologically stable
- Optimal compatibility
- Colorless to pale yellow viscous liquid
- Pure, sweet taste
- Free of starch

### ANALYSIS VALUES

Dry matter content in %:	72.7 % ± 0.5
Brix (20 °C):	71.6 ± 0.5 °Bx
Density (20 °C):	approx. 1.36 g /cm <sup>3</sup>
Viscosity:	approx. 450 mPa*s
Invert sugar content in dry matter:	approx. 66 %
pH value:	3.5 - 7.0
Color:	max. 150 IU
HMF:	max. 20 ppm
GMO:	free
Conductivity ash in dry matter in %:	max. 0.4 pH-value

### SUGAR SPECTRUM<sup>1</sup>

Fructose:	approx. 40 %
Glucose:	approx. 30 %
Sucrose:	approx. 30 %

### MICROBIOLOGY

Total microbial count (CFU /10 g DM):	max. 1000
Yeasts (CFU /10 g dry matter):	max. 100
mold (CFU /10 g dry matter):	max. 100
E. Coli / Coliforms (CFU /10 g dry matter):	negative
Salmonella (in 25 g dry matter):	negative

Store syrup in a cool and dry place, not below 15° C.  
Protect from heat and direct sunlight.

### DECLARATION

The product does not contain preservatives, flavors, stabilizers, etc. Apikel plus bee feed is produced from genetically unmodified raw materials and is free from allergens. We assure you that Apikel plus bee feed is not contaminated in any way. It can be used for feeding bees without hesitation. Made in Germany.

<sup>1</sup> Deviations ± 4 %



*Your expert all around the bee*

We are your specialized trade partner  
for honey and beekeeping supplies.

**GLOBAL HONEY CORP**  
9A Beatrice Tinsley Crescent  
Rosedale, Auckland 0632  
NEW ZEALAND

Phone: +64 21 189 2227  
sales@globalhoneycorp.com

[www.globalhoneycorp.com](http://www.globalhoneycorp.com)