

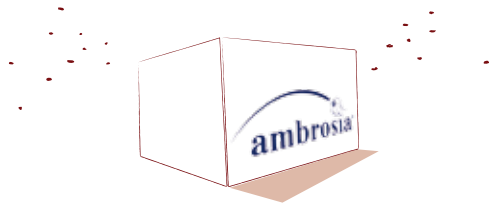


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The proper feeding of bees – a practical guide.





A guide to proper bee feeding



Distributed by

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Food is a necessity



A bee colony must have a constant supply of everything it needs – pollen, water and especially energy-rich food. A dearth of food can be said to obtain, no matter how much is stored up, as soon as the stream of food coming in from the outside is interrupted. That is the reason why gaps in forage must be filled in by feeding in a way that will not falsify the honey. ambrosia Beefood Dough is highly suitable for this purpose.

Following the last honey harvest, the beekeeper must begin supplying his bee colonies with food, right away and generously so that brood rearing will not be interrupted. Beginning at the end of July and in August, brood rearing produces the winter bees, which are essential to the survival of the colony. This is the only time during which brood rearing is maintained, and more bees are produced, based on maintenance feeding. This level of feeding can no longer be reached beginning in September. During the summer, hunger and low supplies always result in less brood, reduced foraging and fewer winter bees. These factors lead to economic sacrifices and the optimum overwintering is no longer ensured for the hive.

Effects of food

In plentiful supply:

Maintenance of brooding nest, pollen gathering, cleaning activities, vitality, health and strength to defend against bees' enemies.

Dearth of food:

Cessation of brood rearing, cleaning activities, foraging flights, production of sub-optimum nurse bees and winter bees, loss of vitality, pronounced economic losses and colony losses.

Physiological requirements

Bee nursing, comprising preventive healthcare (biological mite encasing and removal), food supply (pollen and nectar foraging, forage gap feeding and water supply for site and migration) coupled with the skills of the beekeeper, runs through the entire bee year like Ariadne's thread. This constant nursing effort is necessary to meet the needs of the bees.

Feeding is unavoidable when there is no forage and after the beekeeper has removed the honey stores. It maintains brood rearing, pollen collecting, cleaning activities, vitality, health, defences against bee enemies and the survival capacity of the bees.

“Feeding is unavoidable when there is no forage and after the beekeeper has removed the honey stores.”

Looking at the current situation in Europe, it becomes clear that our bee colonies depend heavily on the efforts of the beekeeper. The decisive thing for the development of the bees in February/March is how plentiful the stocks of food and food-conserved pollen combs are. Colony strength and the resulting number of nurse bees with their thick pads of fat and protein must also be sufficient. A winter bee can raise three summer bees using the stores in its own body alone.

Three fully healthy summer bees are required to rear just one winter bee. Rapid and harmonious spring development of the hive therefore depends on late summer nursing and food supplies to the colonies. So-called “stimulation feeding” in spring has no effect on the bees, resulting only in a waste of energy to process the food, which energy would be much better spent on brood nursing.



Beginning in August and lasting far into September, the brood of winter bees, vital to the colony's survival, are reared. This is the only period during which brood rearing, pollen foraging, vitality, cleaning activities, health and the strength to fend off enemies can influence by maintenance feeding.

Bees are very particular when it comes to their food. Sooner or later, every kind of deficiency such as false composition, spoilage, incorrect sugar spectrum, and above all malnutrition, will have negative consequences. This is reflected in a loss of vitality, poorer brood rearing, reduced cleaning activities, poor health and less successful overwintering. In bees, there is hardly any genetic characteristics weight and longevity to the next generation. Proper care of the bees is the decisive factor.

Placing food directly on young combs, immediately after the last forage has been centrifuged, enhances colony strength. The bees have enough time to invert the stored food. Well-supplied colonies have a better sense of wellbeing and keep up brood rearing in keeping with the season.

If the mite decimation prior to production of the winter bees was successful, overwintering with no losses should be possible. Bees should never be fed with honey, pollen or pollen substitutes due to the risk of foulbrood and noseema. This applies in principle to beekeeping in general.

Successful beekeeping



Successful beekeeping presupposes a basic knowledge of the following fields:

1. Biology of bees
2. Healthcare
3. Bee forage
4. Breeding and selection
5. Seasonal care and feeding

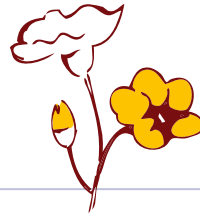
These items are the prerequisites and basic principles of successful beekeeping. They describe the pathway to healthy, strong, productive bee colonies.

Some influential factors, such as climate and weather, cannot be changed. The temperature, for instance, determines when brood rearing and brood nest expansion begins in spring and when brood rearing is slowed and finally stopped in the autumn.

A sufficient amount of the plentiful winter food stores must still be available in spring. Other aspects such as nursing, breeding, selection, healthcare, hygiene, yield and operation depend mainly on the abilities of the beekeeper.

If enough substitute young colonies are available, every emaciated or decimated colony need not be saved and losses can be absorbed more easily. To prevent colony losses, weak colonies should be divided up in autumn and combined with strong units. Beekeepers who suffer repeated winter colony losses should review their operational approach.

A large number of well-fed, healthy, unstressed winter bees, plus good colony food stores, are decisive factors when it comes to achieving loss-free overwintering and success in the coming season.



What is bee food?

Honey, blossom pollen and water. These three components sustained bees throughout 30 million years of evolutionary history. Now a lot more is demanded of bees. Stressed by interference from the beekeeper, migrations, varroasis and greater performance demands, bees need optimized care more than ever. Feeding and bee food that are suitable for the bees are the components of this care.

Sugar water

The bee food sugar water is easy to make, for the most part free of ballast, highly pure, variable in concentration and easy to use. On the other hand, the disadvantage of sugar water is its very limited storage life (spoilage due to fungi and other microorganisms, clouding), so that the bees even have to consume it quickly. Cloudy sugar water is useless for any further feeding. The most forms of sugar water most frequently used are mixtures of sugar and water in a ratio of 1 : 1 or 3 : 2. The bees can process a viscous solution much more easily. There is less water to evaporate, so that less energy has to be expended.

However, sugar water is not suitable for feeding during the forage gap, since the small amounts that sometimes have to be fed on a daily basis may falsify the honey. A honey substitute, which would be feasible and recommended in this situation, appeared too expensive to the beekeepers. So they developed candy dough (also known as sugar candy), and also used dry sugar. This represented a bee food that generated very little food flow because of the limited amounts the bees were able to take up and store. Most of it was feed immediately to the brood or eaten.

Candy dough

Making the dough is hard work, and it is relatively expensive as well, especially if large amounts are required. To make a good dough, 4 kg of white refined powdered sugar and 1 kg of liquefied honey are needed. The mass has to be kneaded thoroughly before it can be used.

In cooperation with beekeeper, the sugar industry has developed special bee products on the basis of its experience with fondant and liquid sugar. Nordzucker has been producing ambrosia Bee Food for beekeepers for a number of years now in the product forms Dough and Syrup.

ambrosia Beefood Syrup

ambrosia Beefood Syrup is composed, in the dry mass, of 40% highly pure fructose, 30% each glucose and sucrose, and water. ambrosia Beefood Syrup is not susceptible to microbiological spoilage thanks to its very high concentration (72.7% dry matter). The high percentage of fructose prevents crystallization.

ambrosia Beefood Syrup is a balanced, liquid ready-to-use food with a low HMF content with an optimized composition that ensures maximum utilization by the bees.



For supplemental winter feeding in particular, ambrosia Beefood Syrup is economical and has the following advantages:

- Liquid, ready-to-use food is the closest thing to natural bee food
- Ideal for early and late supplemental winter feeding
- Resistant to microbiological spoilage, long storage stability
- Hygienic, timesaving and easy handling
- Readily taken up by bees
- No danger of robbery
- Less inversion work and energy expenditure

This increases the longevity of the winter bees and results in improved forage exploitation from rape and fruit blossoming.

Areas of application

- For rapid and easy supplemental winter feeding of producing colonies following summer and heath forage
- For supplemental feeding and buildup of subsidiary nests
- To alleviate emergency situations in cases of food dearth from early spring to late autumn

Practical advice on feeding with ambrosia Beefood Syrup in the 14 kg pail:

- Replace closure lid with feeding lid and check for good closure
- Turn the pail upside-down and place it horizontally in the hive with the lid downwards
- Separate the bee colony from the feeding surface of the perforated lid by means of a piece of cardboard with two strips of wood on which the pail is placed to prevent the otherwise occasional congestion of the holes in the feeding lid



- Due to lid perforation, about 0.5 litres of syrup flow out – after which the bees determine the flow by the amount they use
- Consumption
- Better, simpler utilization by bees when pail is placed upright on the frames, whereupon the closure lid is removed and the syrup surface is covered with floating material such as straw, spruce twigs, wood-wool, cork or lid sealing wax

ambrosia Beefood Dough

ambrosia Beefood Dough consists of microscopically fine sugar crystals that are easily taken up by the bees. The crystals of this ready-to-use food in paste form are surrounded by a thin film of syrup containing a number of other sugar types in small amounts such as fructose, glucose and maltose. Due to its low water content, ambrosia Dough can be stored for months.

Areas of application

- For feeding and care of subsidiary nests during the development and buildup phase
- For early supplemental winter feeding of the subsidiary nests and producing colonies from the end of July to mid-August (syrup is preferable for later supplemental feeding beginning in mid-August to reduce stress on the winter bees and achieve faster storage)
- For maintenance of foraging willingness and brood rearing in producing colonies before the start of foraging and after the end of foraging
- As forage gap food
- Food store feeding for breeding subcolonies (single comb and multiple comb boxes)

Blossom pollen

Blossom pollen are always available at suitable beehive location. This natural food must be exploited in any case to provide the bees with sufficient pollen during the vegetation period. The pollen supply is particularly important in early spring and late in summer for development after the winter and to ensure that the winter bees can build up a fat-protein layer in late summer. If a location is poor in blossom pollen the location must be changed.

The pollen requirement of a bee colony during the vegetation period is between 30 and 50 kg. Collection of pollen combs from excess pollen foraging during the rape blossom period is a very good way to prevent pollen dearth in the early part of the following year. A lack of pollen results in cannibalism within the bee colony.

A clear example of the effects of pollen deficiency is the repeated shrinkage of foraging colonies during forest foraging in extensive spruce and pine forests of the Mittelgebirge – in contrast to the heath blossom in the north. Heath foraging often fails, but the good supply of pollen on the heaths ensures healthy winter colonies with plenty of stores.



Pollen substitution never balances out or supplements blossom pollen. The bees are not adapted to the structure of the pollen substitute. Protein residues remain in the bees' digestive tract – an ideal nutrient substrate for noseema.

"Pollen supply is the key to health and vital bees."

Water

Bees do not store water. For this reason, a hygienically pure source of water near the bee yard is very important, especially in the spring are often not able to fly forays of even one hour to get to water. Slightly acidic water, pH 5-6, is preferred.

The bees require water to prepare the brood food, to meet their own requirements, to dissolve the dough and to cool hive temperatures on hot summer days.

Honey

Honey is by far the best bee food. In the months from April to July, the average daily requirement is around 500 g. Honey is however usually not suitable as a winter food. Forest and heath honeys have too much roughage (risk of dysentery) and too expensive to be used as bee foods.

When does a bee colony begin to starve?

A successful beekeeper is knowledgeable about the biology and health of bees, the available forage and the food supplies a colony will need throughout the year. It is important to differentiate clearly between what we want from bees and what they require.

In emergency situations, humans are capable of top performance levels. Bees, by contrast, restrict and reduce all activities in times of dearth. In times of excess food supplies, humans tend to become lazy and slow, but not bees: the amazing performance levels they often impress us with are the result of times of plenty.

When the food stores in a bee colony approach the 5 kg level and the food flow from outside has stopped, starvation begins. Once the bees determine that unlimited food resources are no longer available, they reduce brood rearing or even discontinue brooding altogether. Recognition of these processes, and undertaking countermeasures, is the primary obligation of the beekeeper. Many more bee colonies die in Germany every year of hunger than of the diseases everybody is so afraid of.

Today, it is more important than ever to provide a secure and promising basis for beekeeping by means of combined measures. These measures include hygienic pest control strategies, use of young, strong queen bees, hygienic comb structures, buildup of strong winter colonies with winter bees characterized by longevity and fat, well-nourished bodies, low stress levels and plentiful food supplies.



Maintenance feeding

The availability of blossom pollen and rising temperature in spring energize and trigger rapid growth of bee colonies. Plentiful supplies from supplemental winter feeding must be on hand. Nature normally does not provide any nectar foraging in early spring. Stimulation feeding at this point in time makes no sense, is bad for the bees and wastes their strength, which they need to concentrate on brood rearing.

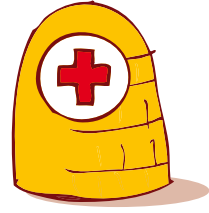
If excessive amounts of food are not present, feeding with ambrosia Beefood Syrup should be carried out as a precaution.

“Blossom pollen and rising temperatures energize and stimulate bee colony growth.”

Avoid disturbances

Every bee colony puts everything it has into achieving harmonic, optimized growth in the early spring. Disturbances in this development must be avoided – every intervention means a setback of one day of development. Careful hive entrance observations will provide the knowledgeable beekeeper with everything he needs to know about what’s going on inside the dark hive.

The number and condition of bees, i.e. mass, health and physiological characteristics, food stores, pollen availability and sufficient empty brood cells, are the decisive factors in optimum early spring development. This optimization is thus dependent on colony food supplies from late summer and autumn. Early spring stimulation feeding (so-called) is inadvisable, since the necessary food reprocessing only saps the energy of the bees.



Emergency feeding

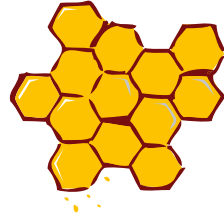
The necessity of emergency feeding may arise at any time and requires an immediate reaction. The first intervention, in winter as well as in summer, is limited to about 0.5 litres of liquid food, preferably ambrosia Syrup. The body-warm solution is distributed directly onto the bees in the comb pathways. 2 hours later, the bees will have licked each other clean, recovered and are once again mobilized. The required feeding with ambrosia Syrup can now begin.

Winter emergency feeding

In winter, the empty combs at the outer edge are removed up to the bee quarters, whereupon these gaps are then filled with warmed good combs. If no food combs are available, liquid feeding using the feed bag must be initiated. The most suitable product for this purpose is warmed ambrosia Beefood Syrup, which causes the least bee stress in emergency situations. It is important to create food stores of at least 5 kg. In case of good weather in early spring, a second helping of food is required.

Summer emergency feeding

In the summer, when foraging has not yet begun, emergency feeding may only be realized with honey solution or honeycomb to prevent later honey falsification. Feeding dough does not work in winter and early spring because of the lack of water. It is possible in the summer, when stores have been created from liquid feeding and forages are no longer in use. An emergency in the bee colony always means a setback in development, so that commercial setback is possible as well.



Interim feeding

The general presence of excess honey today should in most cases have rendered interim feeding irrelevant. Plenty of honey is left to the bees between forages, helping both bees and, in the end, the beekeeper as well. Feeding between forages is now not only relatively expensive, but also takes a lot of time – work beekeepers can avoid.

In emergencies

However, if the stores do fall below the minimum of 5 kg – three honeycombs full to the brim – the colony begins to go into emergency mode. The remedy in such cases comprises either honeycombs from colonies with plenty of stores or weekly feeding of 2.5 kg ambrosia Beefood Dough in the foil package. This will help the bees get through the following critical days and weeks until foraging can begin again. Colony vitality is maintained, a factor of major economic importance in terms of the next foraging period as well.



Subsidiary nest feeding

Subsidiary nests are not used for foraging. They represent the guarantee and reserves for the coming year. 5-7 secondary combs are formed during the rape blossom. These combs are well stocked with food and pollen. When foraging is possible, the subsidiary



nests need not be fed. In other cases, they should be supplied every 8-10 days with 2.5 kg ambrosia Beefood Dough from below using the plastic feeding equipment or the practical 2.5 kg foil package. This saves a lot of work and the upwards development continues rapidly in the young colonies due to the constant flow of food.

With care and expansion in the form of virgin combs from rape forage, the subsidiary nests occupied two supers with 20 NM combs at the end of July. Supplemental feeding begins at the end of July with ambrosia Beefood Dough.

Brood rearing

Brood rearing demands foresight, and acting at the right moment, when it comes to feeding. 3-6 weeks before brood rearing begins, the nurse bees are produced and hatched. During this period, a good supply of blossom pollen and food is very important. Optimum rearing of the nurse bees is one of the most important preconditions for good acceptance and care of high-quality brood. Feeding during nursing tends to be disadvantageous, since it diverts the energy required for brood nursing in another direction that is undesirable. The important thing is to have sufficient stores of food and pollen. Sayings like “collection is more important than nursing” and “good honey – poor brooding” reflect this fact.

Only well-supplied subsidiary nests with intact queens can reach top performance levels. In the late-summer bee yard, the bees enter the winter period with sufficient stores.

If the foraging is good, or if too much food is given to the bees during brood nursing, the queen cells tend to conglomerate, which must be avoided. It is therefore better to position the nursing colonies, after administering the brooding substance, where little nectar forage is expected, but where a good supply of blossom pollen is ensured.

“The important thing today [...] is to ensure the excellent quality of our honey.“

Risk of honey falsification

Today, sugar is easy to find in honey, along with all the other exogenous substances that do not belong there. The quality of the honey determines the sales in the apiary. We advertise with slogans about absence of falsification, purity and „from the comb to the glass“. For this reason, as long as the honey super is in the hive, liquid feeding – except with their own honey – must be taboo!

The problem today is not only to keep the colonies healthy and overwintering; the decisive thing today is to become immune to attacks from the press and consumer groups. Therefore, the excellent quality of our honey must be preserved.

Supplementing the winter stores



Three variant methods of supplementing winter stores are described below, each of which may be justified depending on the operational approach and requirements of particular beekeepers. The following information applies to two-room overwintering with 20 NM combs. The room must be of suitable size with regard to the bee mass.

Rule of thumb for supplemental feeding: 1 litre ambrosia Beefood Syrup, 1 kg ambrosia Beefood Dough or 1 kg sugar per NM comb.

With ambrosia Beefood Dough only

Following the end of foraging on about the 20th of July, the colonies receive a package of 15 kg ambrosia Beefood Dough following removal of the honey (about 3 kg of honey should be left to each colony) and preparation of winter quarters. Procedure: Remove the cardboard lid from the dough package together with the upper foil and rotate the food package by 180° so that the uptake surface lies directly on the frame right above the bee quarters. To keep product ready for use: Cap with empty super and lid

After 10–14 days, the dough has been consumed and 1/2 package of ambrosia Dough is the next helping. With the honey left in the hive, about 3 kg, the colonies will then have received their winter quantum of food and will be all set for the winter by about the 20th of August. Later secondary feedings should be only with ambrosia Beefood Syrup so as to spare the winter bees. The main advantage of this variant lies in long-term maintenance of the food flow to the

bees (later summer maintenance feeding). The results: optimally nursed, unstressed and well-developed winter bees.



The “old maids”, the summer bees, finish up their work before leaving the colony forever.

Well-supplied winter colonies with plenty of strength and vitality are a product of this method of food supplementation. Another advantage is the extensive nature of the beekeeper’s work. A bee drinking trough must always be maintained near the apiary to accompany dough feeding so the water requirement can be met. There is no risk of robbery when ambrosia Beefood Dough is used.

With ambrosia Beefood Dough and ambrosia Beefood Syrup

As described in variant 1, first add a package of ambrosia Beefood Dough. The colonies are now well-supplied and the continuous food flow maintains brood rearing.

Dough feeding at this time of year, end of July to beginning of August, has a better physiological effect than liquid feeding on the quality of the developing winter colony. During the beekeeper vacation period in particular, this variant is highly advantageous. From the end of August to the beginning of September, the amount still needed is made up with 8–10 litres of ambrosia Beefood Syrup. This variant combines early summer maintenance feeding with the rapid and low-stress remaining food supplementation in September.

With ambrosia Beefood Syrup only

ambrosia Beefood Syrup shows all of its advantages in the late supplemental feeding and is second to none for this. This is particularly advantageous to late-forage beekeepers. Heavily stressed winter bees just coming in from the late forage require particularly gentle treatment. The advantages of ambrosia Beefood Syrup are

really in evidence here compared to conventional supplemental feeding with sugar water in a ratio of 3 : 2 or 1 : 1. The reason for this disadvantage is the composition of ambrosia Beefood Syrup, which consists of simple sugars like fructose and glucose and is characterized by a high nutrient concentration of the dry matter. Food reprocessing also requires a lot less energy. The savings compared to conventional feeding is about 15%.

Late supplemental winter feeding begins around 20 September and often extends into mid-October. With 17 litres of ambrosia Syrup fed in addition to a low-level residual amount of honey remaining in the colony of 1–2 kg, the transition to early forage is easily accomplished without food dearth. In conventional sugar water feeding for wintering, 20 kg of sugar is fed, dissolved at a ratio of 3 : 2, to deliver the same amount of nutrients to the colony as 17 litres of ambrosia Beefood Syrup.

In parallel feeding trials with sugar water 3 : 2 and ambrosia Beefood Syrup, it was determined that the colonies fed with ambrosia Beefood Syrup were finished with processing and sealing of the winter food 3-6 days faster.



Beekeeping for heath forage colonies

The decisive factors contributing to rapid early spring development in March / April are the stores from plentiful supplemental winter feeding with ambrosia Beefood Syrup, the rising temperatures, pollen from foraging the physiological condition of the bees. Winter bees have to be healthy, well-nursed during the brooding period and show low levels of varroasis.

Brood rearing and food reprocessing in the autumn should be minor factors. This ensures their longevity. Thick body layers of fat and protein ensure optimum brood rearing and early spring adaptation. The bees have to experience life with plentiful and excessive stores once during the vegetation phase. Best suited to this requirement is the rape forage in May / June. Every beekeeper should really take advantage of this opportunity. The rape blossom is like a fountain of youth for the bees. 15 to 20 comb foundations of high quality are easily built in the honey space and filled with honey.

“Rape blossom is like a fountain of youth for the bees.”

Subsidiary nest-building at the end of May, just before the swarming period begins, is nothing but positive for every aspect of beekeeping in view of the excess forage, pollen and bees. Subsidiary nest-building, and the rotation involved, is today an absolute must in economic terms. After the end of the rape and early forage, until the summer forage begins, we have in our region a forage gap of up to three weeks. By the fifth day without forage at the latest, continuous forage gap feeding must begin and continue until nectar flow begins.

2.5 kg ambrosia Beefood Dough, in the practical foil package from Nordzucker, per week will maintain the colony's willingness to forage without falsifying the honey. In the summer, hunger and low stores always result in brood losses, a drop in willingness to forage and fewer winter bees.



At the beginning of July, a mite diagnosis determines the current infestation level and determines further procedure. At the latest around 20 July, after the end of foraging, the summer honey must be harvested. At least 4 full honeycombs must be left to health colonies for their own supply. With the comb honey rounds this is equivalent to about 7.5 kg. Until the health forage begins, 2.5 kg of ambrosia Beefood Dough must be made available weekly as maintenance food.

This food package, with a daily reduction of approx. 400 g, is required in its entirety for brood rearing and the bees' own nourishment. When the heath forage sets in, this feeding is discontinued. As soon as nectar is flowing, the bees disregard the dough. During periods of feeding with dough, a continuous and reliable supply of water must be ensured.

The continuous food flow until the forage ensures maintenance of the brood nest and brood rearing. The health, vitality, willingness to forage, colony strength and reproduction of winter bees with low levels of stress and optimum care is supported.

If the heath forage is plentiful and the colony continues to grow smaller, it is highly advantageous to centrifuge a super with ripe honeycombs towards the end of August so as to consolidate the colony by this amount. This represents a large part of the final centrifuging, but the real advantage lies in the reduction of size and resulting improved processing and ripening of the heath honey by the bees. The size reduction optimizes the conservation of heat in the hive and the honey is more compactly piled around the reduced brood nest.

Final centrifuging combines two jobs in one. It is more efficient and easier on the bees to do it all in one step instead of beginning anew each time. This reduces the risk of robbery and the stress load for the bees is much lower. Of ten colonies, the five selected for overwintering are harvested first. The entire sealed brood is taken

along, treatment with perazine or oxalic acid is carried out and the missing comb gaps are fitted with pollen combs in the middle and with combs that have been brooded once or are still virgin combs towards the edge. Then the food tray is positioned and filled with ambrosia Beefood Syrup. A blocking screen is placed in front of the hive entrance and an entering plate is positioned at an angle reaching to the ground.

“Until the heath forage begins, 2.5 kg ambrosia Beefood Dough must be provided every week.”

The five colonies to be disbanded are emptied onto the entering plate, comb by comb. After gaining their orientation, the bees rapidly run into the selected colony – without biting. The queen is trapped by the blocking screen and is killed immediately.

Honeycombs, brooding and empty combs must be made inaccessible to the bees without delay and stowed. This allows for rapid and stress-free work with no intervening problems. The first feeding then takes place on the next afternoon, followed by a one-day processing break and then supplementation with the remaining food. In this way, 17 litres of ambrosia Beefood Syrup is feed to each colony by the end of September.

The next mite diagnosis is due in November. This is absolutely necessary to make sure the level of infestation is low. No further treatment is required as soon as fewer than one mite per day is found. Thus the years ends and well-supplied bee colonies with low stress levels guarantee safe and secure overwintering with healthy and vital bees for the coming season.

The 16 kg cubitainer

The 16 kg cubitainer has proved very useful in practical application. This unique combination of liquid food in a transport and packaging container with feeding equipment makes the stressful procedure of supplemental winter feeding much easier and offers a number of additional advantages:

- No risk of robbery, since spillage and leakage are no longer possible
- Hygienic colony feeding that preserves the bees' vital powers
- No further feeding equipment required
- Reuse and refilling are possible as needed
- This results in cost savings
- Extensive beekeeping work
- Can be used at any time of day
- Very long storage life and stability period because the food is not susceptible to microbiological spoilage
- Simple handling requiring low levels of exertion

Practical application

The 16 kg cubitainer is positioned with a magazine from above in an empty super or in the rear treatment and trough hive of the cleared honey space. It is easy and safe for the bees to deposit their food in the combs for storage via a climbing tube (available in apiary stores). Direct supplemental feeding cannot be carried out without the climbing tube with bottom to avoid bee losses due to drowning. A further piece of advice: After removal of the perforated opening, screw the closure lid off the sleeve and immerse the climbing tube with a stirring motion, whereby the sleeve is neither pulled up nor pressed down. A frame strip above the climbing tube prevents it from drifting up and makes it easier for the bees to access the tube.

The 2.5 kg foil package

The 2.5 kg foil package is new in the ambrosia programme from Nordzucker.

The Beefood Dough is available in the 12.5 kg package with five units per carton.

This is a product for beekeepers in the proven quality they are used to from Nordzucker that combines a number of advantages:

- Practical, handy, always within reach
- Hygienic application
- Long storage stability
- Extensive application
- Optimally suited for forage gap feeding, buildup of subsidiary nests, supply to heath forage colonies before forage begins and to supply the reproductive colony during queen production and brooding



Practical application

Using a knife, cut open a narrow slit, about 2 cm wide along the lengthwise side to allow the bees access to the product. This ensures a maximum daily feeding volume of 300-400 g. This amount is required for daily nourishment without stockpiling in the combs and for brood rearing. That way, there is no honey falsification during forage gap feeding. Repeat feedings every seven days are required until onset of the forage to ensure the bees do not reduce their brood rearing activities.

The 2.5 kg foil package is readily portioned, making it optimally suitable for supplying reproductive colonies in single comb and multiple comb boxes. Before filling the storage chamber in a wooden single comb box, seal it with beeswax to prevent the wood from drawing the moisture out of the dough to ensure easy feeding by the bees.

Wishing lots of fun and success,

Sincerely yours,

Klaus-Michael Fülle



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Important points



To start the beekeeping season off with healthy and long-lived winter bees:

1. Maintenance feeding adapted to bee requirements (preferably with ambrosia Beefood Dough) is required beginning with the end of the forage, i.e. about 20 July, to maintain brood rearing at a high level of efficiency.
2. A check for varroasis infestation and reduction of the mite population must be achieved at the same time. Watch out for possible reinvasions.
3. The “old maids“ of the bee colony should continue working to complete the job of food preparation.
4. The larvae must be floating in brood food.
5. Beginning in September, winter bees can no longer be produced by means of feeding.
6. The winter bees must still be able to fly forays so their bodies can build up the necessary fat and protein layers by feeding.
7. Winter bees begin to age as soon as brood rearing and other glandular work, such as food preparation, is required.
8. The ageing process in the winter bees should be delayed by means of a non-brooding interval that is as long as possible.
9. Beginning in mid-August, feed only ambrosia Beefood Syrup, which causes minimal stress loads due to its inversion and optimum composition as a bee food.
10. The supply stored up for a strong, healthy bee colony should not be less than 20 kg of winter food at the end of August.



ambrosia product programme

The ambrosia Beefood Syrup should be stored cool, but not below 10°C. Large temperature variations should be avoided as far as possible. The syrup is available in 14 kg plastic pails, in 16 kg cubitainers for rationalized direct supplemental feeding with a climbing tube and in 28 kg refill cubitainers. The perforated food lid for the 14 kg pail and the climbing tube for the 16 kg cubitainer are also available from your specialist dealer. 14 kg are equivalent to 10 litres of syrup, 1 litre of syrup is equivalent to 1 kg of crystal sugar.

ambrosia Beefood Syrup

14 kg pail

16 kg cubitainer

28 kg cubitainer

160 kg /290 kg keg

Bulk product in tank trailer beginning at 5 t

ambrosia Beefood Dough

15 kg carton

5 x 2.5 kg foil package in carton

Please direct price queries to your specialist dealer.

Storage life of ambrosia Beefood products

ambrosia Beefood products should be stored cool. Between +10°C and +20°C is a suitable storage range for these products, at which they can be stored for a year with no problems in the original packaging. Cold causes less damage than heat. ambrosia Beefood Syrup may cloud if subjected to freezing temperatures, but it will remain liquid. The clouding disappears when the temperature rises again. Do not store Dough and Syrup for the summer in garages and shacks that heat up. A cool cellar is the best storage location.

The high sugar content level of ambrosia Beefood Syrup - 72.7% - protects the product from microbiological spoilage. This no longer applies if the product is soiled during filling into other containers. Syrup residues that have already been used, or Syrup diluted with water, must however be used up as soon as possible or destroyed. The storage stability of such leftover or diluted amounts is greatly reduced.

ambrosia Beefood Dough must be stored protected from mice.

To sum up

1. A bee colony must never starve. An emergency situation can already be said to obtain when the food supplies of the colony fall below 5 kg.
2. No supplemental feeding with sugar is allowed as long as the honey space (combs) is with the colony in the hive.
3. It is better to overwinter the bees with ambrosia feeding than with honey.
4. Use only fault-free food. Old sugar water becomes clouded and is not tolerated well by the bees.
5. Ensure ready availability of plenty of blossom pollen.
6. If honey is fed to a colony, use only its own harvest (risk of foulbrood).
7. Provide a hygienic water trough near the apiary.
8. Successful care of bees, and the health of the bee colony, also depend on well-adapted feeding and food stores.

Therefore



Beefood from Nordzucker