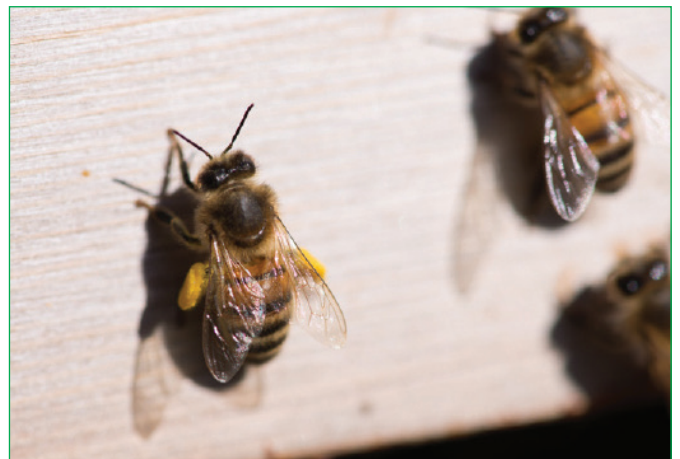




Animal &
Plant Health
Agency

National Bee Unit

Starting Right with Bees



Pollination

Pollinating insects provide almost incalculable economic and ecological benefits to humans, wildlife and flowering plants. Honey bees, *Apis mellifera*, are the third most economically important agricultural livestock globally after cattle and pork. Honey bees are indispensable to the stability of crop production and food security in the UK and across the world, contributing £many millions to crop quality and quantity via pollination services. The first step in the production of fruit and vegetables is the pollination of the flower, of which 70% of the 124 main crops used directly for human consumption depend on pollinators.

Pollination of fruit trees



The National Bee Unit
Animal and Plant Health Agency, National Agri-Food Innovation Campus,
Sand Hutton,
York,
YO41 1LZ.

Telephone +44 0300 3030094
Fax +44 (0)1904 462 111
Email nbu@apha.gsi.gov.uk
Website www.gov.uk/apha

© Crown copyright 2016

Copyright in the typographical arrangement and design rests with the Crown.

This publication (excluding the logo) may be reproduced free of charge in any format or medium provided that it is reproduced accurately and not used in a misleading context. The material must be acknowledged as Crown copyright with the title and source of the publication specified.

This document is also available on BeeBase (National Bee Unit) website, www.nationalbeeunit.com

Published by The Animal and Plant Health Agency. Printed in the UK, 2016, on material containing 80% post-consumer waste and 20% Elemental Chlorine Free pulp.

About This Leaflet

Starting Right with Bees

This leaflet is designed to provide comprehensive information for all aspiring beekeepers and to direct enquirers to the essential information to help decide whether to take up the fascinating and rewarding craft of beekeeping.

**With
the
National Bee Unit**



Contents

About this leaflet	iii
Contents	iv
Why consider keeping bees?	2
Beekeeping as a hobby	2
Importance of bees for pollination and ecosystems	2
Before you start	2
Introduction to the honey bee	3
Members of the colony	4
The worker bee	4
The queen bee	4
The drone bee	5
What do I need to keep honeybees?	5
Beehives	5
Protective clothing	6
Beekeeping tools	6
Honey processing	7
What does it all cost	7
Where do I keep bees - the apiary	7
Choice of apiary site	8
Things to consider when choosing an apiary site	8
How do I get started?	9
Your first colony	9
Stings	10
How will I manage my bees?	10
It all starts in the autumn	11
Winter	11
Spring	11
Summer	11
Record Keeping	12
Using medicines responsibly	12
Disease	12
The Legislation	12
Imports and exports	13
<i>Varroa</i>	13
Honey	13
Putting it all together	13

Contents

Where Can I get more help?	14
Example reference books	14
Beekeeping Associations	14
BeeBase	14
Your local bee Inspector	14
Elearning	15
Equipment suppliers	15
The National Bee Unit	15
Why is it so important to register on BeeBase?	16
How to sign up to BeeBase	16
How do I know that my details will be secure?	16
Useful addresses	17
References and Acknowledgements	18
Acronyms	18
Notes	19

Why consider keeping bees?

Why Consider Keeping Bees

The following may sound familiar: 'I've been thinking about keeping bees for a long time and now I want to give it a go', or 'I've always wanted to do this and now have the opportunity', or 'It has been in the back of my mind for quite a while, since I was at school'. So 'How do I start?' This is a simple question, but there are a very broad range of skills and knowledge required to become a competent beekeeper.

Keeping honeybees is a fascinating and rewarding pursuit. Many beekeepers have a few colonies that they keep to study bee behaviour and obtain honey for family and friends. Beekeepers keep bees for a number of reasons, for example to be able to watch these fascinating creatures in the garden and get away from the hurly burly of everyday life. But along the way many hope to get good honey crops. There is just something special about producing and bottling your own honey. The most populous colonies usually produce not only the most honey per colony but the most honey per bee.

After experience in the management of a few colonies, some beekeepers expand their beekeeping to keep more hives: most commercial beekeepers began this way, so you never know how the story may end.

Beekeeping as a hobby

Honey bees are kept by many people as a hobby. Apiculture, which is the keeping of bees and a study of their life and habits, holds a fascination for people in all walks of life – both young and old. A few colonies of bees to furnish honey for the home or for pollination can be kept almost anywhere with careful planning, advice and consideration for neighbours. However, as a hobby, beekeeping can be a self-supporting avocation and is especially attractive to those interested in the countryside. Pursued intelligently, beekeeping involves considerable reading and direct observation and study of this insect, together with knowledge of nectar and pollen bearing plants.

Importance of bees for pollination and ecosystems

Honeybees visit flowers in order to collect food in the form of both nectar and pollen by flying from one flower to the next, the honeybee transfers pollen between flowers and pollinates them. Insect pollination is a vital ecosystem service contributing to sustaining plant biodiversity in both agricultural and natural environments. Honey bees are one of the most important pollinators of both agricultural crops and wild plants but they also produce honey and hive products such as beeswax, pollen, queens and royal jelly.

Before you start

Before taking up the craft of beekeeping bear the following in mind: keeping bees involves managing livestock. They require looking after and even with a few colonies this requires a good deal of commitment. You have a duty of care to look after them properly. It can be quite demanding and heavy work at times, for example handling heavy honey supers or shifting bees from apiary to apiary for pollination or to crops for honey gathering. It means making sure the bees have enough food at all times and enough space for the expanding

Figure 1: An example of a strong colony. In the height of the summer it could contain up to 60,000 bees



Introduction to the honeybee

colony. During the summer months you also need to carry out inspections every week to ten days: to control swarming and to make sure that your colonies have young queens and plenty of space for the expanding bee population and storage of honey. You will also need to ensure that any disease is managed appropriately.

Varroa destructor is a pest which can cause serious damage to honey bee colonies. If you keep bees in the UK, you will have to manage *Varroa* populations by using a combination of good management techniques and medicines. More details can be found in the National Bee Unit (NBU) "Managing *Varroa*" leaflet.

This just touches the surface of what is involved when keeping bees but as you can see, there is a lot to think about so delve into this leaflet further to see if beekeeping is for you.

Figure 2: *Varroa mites feeding on a honey bee larva*



Introduction to the Honeybee

Honeybees are social insects and live together in large colonies. Each colony contains one fertile female known as the queen, and many thousands of sterile females known as workers. For three to four months in summer, a colony will also contain a few hundred males known as drones. From early in the year until late autumn most colonies have developing young, (eggs, larvae, pupae), collectively known as brood. These are reared in wax combs which also contain the colony's food stores. During winter, brood rearing either ceases, or is greatly reduced and the colony lives on the food stores it has accumulated during the summer.

At the height of the summer there can be a population of 50,000 -60,000 workers in a colony, together with a few hundred drones and the queen. During the winter, when there is little work to do, the colony population reduces to 15,000-20,000 workers and the queen. Normally, there are no drones in a colony during the winter months.

The honeybee's ability to survive on stored food during unfavourable seasons and to regulate the temperature of its nest independently of the temperature of the environment has enabled it to spread to most parts of the world. In our temperate climate honeybee colonies gather and store enough food reserves of honey and pollen to survive the winter. In a good year the beekeeper is able to take the excess honey from the colony, leaving enough for the colony to survive through the cold months until the following spring.

There are many different strains of the honeybee. The subspecies differ in colour, temperament, productivity, resistance to pests and diseases and so forth. Some bees are very easy to control while others are virtually uncontrollable, especially in the hands of a beginner. Currently, there are thought to be 24 recognised subspecies of the European honey bee *Apis mellifera*, which is the honeybee present in the UK and Europe. Beekeepers will tend to choose a strain that suits their purpose.

Mankind has always shown interest in bees for the honey they produce. But in recent times there has been an increasing awareness of the important service bees provide by pollinating

Introduction to the honeybee

many agricultural and horticultural crops, as well as wild and garden flora. The value of honeybees as pollinators far outweighs their value as honey producers. Pollination by honeybees is estimated to contribute many millions of pounds to the UK economy.

Members of the colony

The honeybee colony is composed of two female castes, the queen and the worker plus a male caste known as the drone. The general structure of the honeybee resembles that of other insects, but each of the three castes (worker, queen and drone) are provided with special structures that are adapted for their specialised role.

Figure 3: Honey bee workers



The worker bee

The worker does most of the necessary tasks in the colony except for laying eggs. These tasks include cleaning cells, feeding brood, producing wax, building combs, ventilating the hive, guarding the entrance, foraging for food and processing nectar into honey. The task each worker carries out is related to its age, for example, the youngest workers tend to act as cleaners within the colony, and the oldest workers are the foragers. This division of labour based on age (temporal polyethism) is adapted by the colony as necessary to meet its needs.

Worker bees in the summer live for about 6 weeks, but in winter, when there is less work to do, they can live for up to 6 months.

The queen bee

The queen is the largest member of the colony. Her role is to lay eggs to produce more bees. She is the only bee which can lay fertilised eggs and hence she is considered to be the 'mother' of the colony. Her long abdomen contains ovaries which are capable of producing large numbers of eggs for prolonged periods of time. The queen is able to determine the sex of the offspring that she produces by controlling the fertilisation of the eggs that she lays. If the queen lays a fertilized egg, it will develop into a female bee (worker or queen). Unfertilized eggs develop into males (drones). Having this control is important for the wellbeing of the colony, as a colony has to comprise a large population of workers to carry out the majority of the work. A queen will live for several years.

Figure 4: Honey bee queen



What do I need to keep honeybees?

The drone bee

The drone is heavier and larger than the worker, but not as large as the queen. The drone is the male bee in the colony and his role is to mate with the queen so that she can lay fertilised eggs. The drone's sex organs take up a large part of its abdomen. Drones live for several months during the summer, but are ejected from the colony as winter approaches.

Figure 5: Honey bee drone



What do I need to keep honeybees?

As with most hobbies a certain amount of equipment and knowledge is required in order to be successful.

Beehives

A beehive can be described as any cavity which will house a colony of honeybees. For example honeybee colonies will thrive in hollow trees, holes in rocks, or in wooden boxes.

Modern moveable frame beehives comprise a series of wooden or polystyrene boxes each containing wooden or plastic frames to support the wax combs built by the bees.

There are several designs of moveable frame beehives which may be obtained from hive manufacturers. These have names which are

often based on the name of the hive designer for example, the National, the Smith, the Modified Commercial, the Langstroth and Dadant. All of these hives allow the frames holding the comb to be removed for inspection. The National and the Smith hives are the most popular hives in Britain.

Polystyrene and plastic beehives have been used in Europe for at least 30 years and have become more popular in the UK in recent years. When considering either hives one should weigh up their long term durability compared with the lower initial cost. In addition, the options available for cleaning and sterilisation of plastic hives are limited compared to the range of treatments you can use on wooden hives.

Over recent years in Britain, there has been an increase in the number of beekeepers who have moved away from moveable frame hives and have started using top bar hives, of which there are a wide variety of designs. The majority use only a top bar for the bees to build their combs from; there are no side bars or bottom bars as in moveable frame hives. Horizontal top bar hives are long and coffin like, usually with sloping side walls, and the combs are built side by side gradually moving along the box. Vertical top bar hives use boxes of top bars stacked one on top of each other in a similar fashion to moveable frame hives.

The NBU strongly recommends that bees should only be kept in movable comb hives. These help sound colony management and, most importantly, permit the regular and thorough examination of the colony, including the brood area for signs of disease. It is only by regular and routine examination that early detection of disease is possible, which allows swift intervention before the disease spreads far and wide. You can't tell if anything is untoward if you can't check the colony easily. So whilst recognising the growth in the use of top bar hives, the NBU preference is to continue to recommend keeping bees in modern moveable frame hives.

All beekeepers, regardless of the type of hive in use, have a responsibility to reduce the chance of the spread of pests and diseases. Maintaining colonies in a manner that enables

What do I need to keep honeybees?

inspection for the detection of harmful pests and diseases goes a long way towards achieving that aim. It is important to understand/appreciate that the requirement for inspection outlined earlier must take precedence over the 'leave alone' or 'natural' beekeepers reluctance to open the hive. Bees kept in non-moveable or fixed frame hives **will be** inspected by NBU inspectors if the hives are deemed to be in 'at risk' apiaries. Recent data from NBU inspectors show that bees kept in top bar hives are just as susceptible to disease as those kept in removable frame hives.

From time to time second-hand hives are sold. It is essential, if you are considering buying second hand equipment, that the equipment has been cleaned and sterilised so that it is free from anything which could cause spread of bee diseases. Buying second hand equipment is an easy way to inadvertently spread disease if care is not taken to ensure the equipment is disease free. For more information there is a comprehensive fact sheet written by the National Bee Unit covering Hive Cleaning and Sterilisation. This is available for download from BeeBase: <http://www.nationalbeeunit.com/index.cfm?pageid=167>.

Protective clothing

When bees are handled, protective clothing and equipment are needed to protect the

beekeeper against the occasional sting. This gives confidence which then allows efficient colony management and close observation of bee behaviour. Protective clothing should comprise a hat and veil that will fully protect the head and face while allowing clear vision and free flow of air; a light-coloured, zipped, light-weight boiler suit worn over normal everyday clothing, beekeeping gloves with gauntlets, and Wellington boots or working boots with protective toe caps. An alternative is a full bee suit, which combines the veil and boiler suit.

Beekeeping tools

A bee smoker should always be used to subdue the bees. Smoke is produced by burning a suitable fuel in the smoker and the best fuels are slow burning and produce a cool smoke for a reasonable length of time. Popular fuels include cardboard, dried grass or rotten wood. As an alternative, many of the beekeeping equipment suppliers also supply suitable smoker fuels.

Another essential part of the beekeepers tool kit is the hive tool. This is a mini 'crowbar' which is needed for prising the various hive components apart and for scraping frames and the inside of hive surfaces free of beeswax. Hive tools come in a range of shapes and sizes.

Figure 6: Beekeepers in full protective clothing



Figure 7: A smoker and a pair of hive tools



What do I need to keep honeybees?

Figure 8: Honey extractor



invested is recovered quickly. The return on the investment is usually quite rapid with good years, good bees and good management meaning that in some circumstances, beekeeping can provide a supplemental income.

Second hand equipment, when available can help to reduce the initial cost. If buying second hand hives, it is worth checking that they are of the correct size. Some homemade equipment may not have been accurately made and can make colonies difficult to inspect. The possibility that second hand equipment may contain disease pathogens should always be considered and, as mentioned previously, any such equipment must be sterilised before being reused.

Honey processing

Bees will produce honey if conditions are suitable. In some years this can be as much as 40+ kg per hive. In order to harvest this honey, you will need the equipment required for honey processing. This includes equipment for uncapping the combs, extracting the honey from the combs, filtering, bottling and labelling the honey. Many new beekeepers join a local beekeeping association which then allows them to borrow some of this equipment when needed, thus avoiding this expenditure at least in the early years.

What does it all cost?

At the beginning the initial outlay could be quite high, from £500-1000 plus for a colony of bees, the equipment (hive, smoker, hive tool, extractor, honey bottling and filtering equipment) and protective clothing required. It is possible to economise when starting up by borrowing extraction equipment or by buying some equipment second hand. In addition, it is also possible to spend significantly more money. Just like motoring, not everyone needs a Rolls Royce, but you might want something better than a second hand rusty old banger. Good equipment will last for many years, if looked after properly and will be worth the investment.

Achieving good honey yields and selling the surplus honey can mean that the money

Where to keep your bees - the apiary

The site where bees are kept is referred to as an apiary. The apiary site is as important for the beekeeper as it is for the bees.

A small number of colonies can be kept almost anywhere in the British Isles. In recent years, there has been an unprecedented increase in the number of bee colonies, particularly in urban and semi urban environments, where honey yields can be surprisingly high. There is a great deal of advice available from beekeeping associations about the siting of apiaries.

Apiaries should be sited away from neighbours or public areas to minimise the risk of members of the public being stung. Remember, not everybody likes honey bees. However, bees can be encouraged to fly above close neighbours by having high walls or hedges around an apiary to minimise any nuisance which a colony may cause. This is an important factor to bear in mind because if neighbours or their pets get stung, public relations can be damaged. Additionally, bee stings pose a very small risk of danger to life which cannot be overlooked.

If a beekeeper wishes to build up beyond the capacity of the home apiary, they will need to establish out-apiaries, that is, apiaries away from home. It is quite feasible to keep bees away from home because, unlike other forms of livestock, bees do not require daily attention.

What do I need to keep honeybees?

Nevertheless, the colonies must be given attention when they require it.

An out-apiary needs to be readily accessible throughout the year, sheltered, dry and sunny. Areas prone to frost should be avoided.

Although some areas may provide food for a few colonies, they are incapable of supporting large numbers of colonies throughout a whole season. In these areas it may be advisable to practice migratory beekeeping (moving colonies to suitable crops when they are in flower). This can provide a valuable pollination service for farmers and a surplus of honey for the beekeeper.

Figure 9: Hives placed on good stands



Choice of apiary sites

You should gradually familiarise yourself with sources of pollen and nectar in your locality, times of bloom and relative importance to bees. The better locations for honey production will have one or more species of plants that yield abundant nectar from which honey is produced. Ideally, the greater the number of plant sources, the better chances of obtaining good yields of honey. If possible, put hives in areas where early sources of pollen, essential for advancing colony development, are available, so that they can take advantage of them whenever the weather permits.

Figure 10: Hives arranged with their entrances facing different directions and placed on good/solid stands



Things to consider when choosing your apiary site

- Chose the site carefully;
- Choice of apiary is important also for successful over wintering.
- Consider whether there is late forage available as overwintering colonies need 25kg of stores;
- Good road access in all weathers;
- Avoid frost pockets;
- Sunny, well drained and firm ground. Good air drainage, sheltered from prevailing winds and damp conditions;
- The hives themselves need to be in good condition: sound, weather and vermin proof;
- Hives placed off the ground on stands, makes it easy to work them without bending the back;
- Entrances facing different directions to reduce drift;
- Site away from public footpaths.

How do I get started?

How do I get started?

Prior to committing to the craft anyone considering keeping bees should firstly talk to and visit someone who is already experienced in beekeeping. Most people will have a beekeeper not too far from them, but will probably not realise this, so if contacting one proves difficult you can seek advice from the appropriate national beekeeping association who may be able to put you in touch with a local group. Contact details for these organisations (the British Beekeepers' Association (BBKA), the Scottish Beekeepers' Association (SBKA), the Ulster Beekeepers' Association and the Welsh Beekeepers' Association (WBKA)) can be found at the end of this publication. Additionally, it is advisable that you join a local beekeeping association as this will keep you in touch with the local beekeepers, and provide access to training courses, lectures and insurance, amongst other benefits.

Learning how to manage your bees and gaining some hands on experience of handling them is essential before purchasing a colony.

Figure 11: Having a mentor has all sorts of benefits, especially when it comes to lifting heavy supers!



Alternatively your local bee inspector may be able to put you in touch with a beekeeper or group in your area <http://www.nationalbeeunit.com/public/Contacts/contacts.cfm>.

Most experienced beekeepers are only too happy to discuss beekeeping with potential beginners and following initial discussions will probably offer to show you their apiary. Most local beekeeping associations will have courses on "introduction to bees" and other taster sessions. Joining such a course is a good way to find out more. Once you have gained a little more experience you may decide to get some bees yourself.

Your first colony

Local beekeeping associations often help new beekeepers get started, for example, by providing a small colony.

Bees are usually available for purchase from April through to August but it is easiest to start in May by obtaining a small, docile 5-6 frame colony referred to as a nucleus. Best Practice Guideline No. 8 - Sale of Honeybee Nuclei provides details of the quality to expect from suppliers that you purchase bees from. This document can be downloaded from BeeBase <http://www.nationalbeeunit.com/index.cfm?pageid=167>.

A nucleus will quickly grow in size during the summer to a large colony containing 50,000-60,000 workers. You will need to make sure that that you have the extra hive components needed to house the colony as it expands, and also, to store the honey harvest.

Some people start by catching a swarm and if you do, it is important to make yourself aware of the temperament and pest and disease issues when the origin of the colony is unknown. The colony needs to be thoroughly checked as soon as possible to ensure it is healthy.

Some bees are very easy to manage through the normal use of a smoker, while others can be uncontrollable, especially in the hands of a beginner. It is very important as a new beekeeper to start with bees of a docile temperament. These are far easier to manage than vicious colonies. They take less time to inspect and it becomes a pleasure rather than a chore. The last thing you want in your first season is to be so discouraged by having to deal with vicious bees that you decide to give up beekeeping.

How do I get started?

There are many bees that are quite docile and easily manageable. You may hear from an “old timer” that defensive bees produce more honey, but this is simply not true. There is no connection between the temperament of bees and their potential productivity.

Things that you need to bear in mind when obtaining bees include the following:

- Ascertain that the stock offered is suitable for your needs. Try to avoid obtaining bees from outside your area as this could accelerate the spread of pests and diseases. Many beekeepers consider that local strains generally suit the natural flora of that locality.
- Use a reputable supplier and ask other beekeepers for references to help you choose. Check with the supplier where the queen has come from. It is not always clear what strain of honey bee you are obtaining and whether the queen has been bred by the supplier, bought in or imported.
- If possible examine the bees before purchase to ensure they meet the required standard and are disease free. If you do not feel competent to do this, then ask an experienced beekeeper to help you. This is rather like getting the AA or RAC to check a car you are thinking of purchasing. If the supplier is not prepared to allow examination prior to purchase then consider why.
- Remember, it is also important to maintain a record of your purchase.
- More information on obtaining bees and a suggested form for recording your purchase can be found in the Best Practice Guideline No. 5 - Advice for obtaining honey bees on BeeBase <http://www.nationalbeeunit.com/index.cfm?pageid=167>.

choice of a docile strain of bees can reduce the risk of being stung to a minimum. Stings should not be common when colonies are handled properly and normal precautions are taken.

The first sting is unlikely to cause serious disturbance but there will be pain with some local reddening and swelling round where the sting has penetrated. Beekeepers quickly learn to minimise the swelling and reddening by immediate removal of the sting. The swelling may persist for several days and there is likely to be some itching before the symptoms disappear. As more stings are received, immunity to their effects usually develops, although some swelling around the site of a sting is quite common. Remember, bee stings are always painful.

Unfortunately, some people are allergic to bee stings and instead of developing an immunity, they become severely allergic after a few stings. Their symptoms (associated with a serious generalised reaction) include widespread red blotching of the skin, skin irritation, a change in heart rate with a falling blood pressure, difficulty in breathing, and fainting.

Such symptoms require urgent medical attention. A person who becomes unconscious as the result of a bee sting can die.

Very allergic individuals can be successfully desensitised by a doctor by using bee venom therapy. Given the correct treatment and medical advice, they can take up or continue with beekeeping if they so wish.

How will I manage my bees?

As well as enjoying their bees, most beekeepers hope to produce honey. To produce honey, the aim is to maximise colony populations to coincide with the main nectar flows. This is what the bees themselves do in the natural cycle, but the beekeeper can, through effective management, help them along.

The basic requirements for a productive honey bee colony are ample reserves of honey and pollen at all times and provision of adequate space so the queen can lay fertilised eggs for development of the colony. In addition, colonies

Stings

Honey bees can sting. This is something that you must consider before beginning beekeeping. Beekeepers must be able to tolerate bee stings since they cannot be avoided altogether. Good management of colonies and

How will I manage my bees?

should be healthy and headed by a young prolific queen, usually no more than two years old.

A very important part of the skill of beekeeping is to learn to handle your bees with confidence. By opening and inspecting your colonies on a regular basis you can check and ensure all is well, that the bees are developing as expected, and that any disease is identified early so that it can be properly dealt with.

It all starts in the autumn

Believe it or not, probably the most important task for the beekeeper is preparing colonies to survive the winter. This begins early in autumn with *Varroa* treatments, replacement of old queens and, if necessary, feeding colonies to ensure they have sufficient stores for the winter.

Winter

During the winter months, colonies should be disturbed as little as possible. All that is required is to check that the bees still have plenty of stored food to enable them to survive the winter. If a colony is short of food it can be given food supplements to top up its stores.

Beekeeping has an annual cycle. Winter is a good time to think about the tasks that need doing at each period of the year and to plan ahead to be ready with the equipment that will be needed. This is also good time to maintain

spare equipment which will be needed for the new season.

Many beekeeping suppliers hold sales during the winter months which provide a good opportunity to stock up with additional equipment and treatments at attractive prices.

Spring

Once the weather warms up, it is possible to start regular inspections again. At the first full inspection, check for evidence that the queen is present and laying eggs and look for any signs of disease. In particular, check the level of *Varroa* mite infestations at the start of the season. During subsequent inspections the queen can be marked if required, and the colony can be given extra space to store the surplus honey that hopefully will soon be flowing into the hive.

By May regular swarm checks need to be carried out on colonies every 7-10 days and monitoring of *Varroa* levels needs to continue. If this monitoring shows that the *Varroa* levels are too high, then control methods can be used to reduce numbers of mites. See the booklet "Managing *Varroa*" available for download from BeeBase: <http://www.nationalbeeunit.com/index.cfm?pageid=167>.

Summer

During the summer, you will need to continue with regular inspections to check for swarm preparations, monitor *Varroa* numbers and check for signs of other diseases. Again, it is essential to make sure the colonies have adequate space for brood and storage of honey.

At the end of the summer, the surplus honey crop can be removed and then the beekeeping year starts all over again by preparing the colonies for the coming winter.

Figure 12: It is important that you can gain access to your apiary, even in the winter



How will I manage my bees?

Record keeping

Keeping good records throughout the year is important for assessment of the colony and for recording any medicines which are used to treat any disease. Keeping records of any medication applied to honeybees is a requirement under EU legislation. More information about medicine record keeping, along with a template for the medicine record card can be found on BeeBase in the medicines tab: <http://www.nationalbeeunit.com/index.cfm?sectionid=110>

Using medicines responsibly

It is inevitable that, as a beekeeper you will have to use medicines, for example to manage *Varroa* infestations (see “Managing *Varroa*”). *Varroa* is a parasitic mite that is ubiquitous in the UK and needs to be controlled regularly to maintain productive colonies. There are certain things you must do and respect when using medicines:

- Follow the labels;
- Keep records;
- Use only approved licensed Veterinary Medicines;
- Store and dispose of as specified in the documentation provided with the medicine.

Disease

Like all livestock, honeybees suffer from various pests, parasites, and diseases. Many of these are a minor nuisance, are not generally serious and can easily be managed by the beekeeper. However a small number of bee pests and diseases are potentially very serious and can have a significant impact on the health and wellbeing of the colony. The key to effective disease control is early detection which requires vigilance. You must be able to spot any abnormalities immediately, and take whatever action is necessary. Healthy colonies will perform well and given the right conditions, produce a honey crop.

The legislation

The Bee Diseases and Pests Control Orders

The pests and diseases that can have a significant impact on the health and wellbeing of the colony are, for England and Wales, covered by an Act of Parliament, The Bees Act 1980, and various Control Orders put in place under the terms of the Act. Every beekeeper needs to be familiar with the provisions of the Bee Pest and Diseases Control Orders 2006 for England and Wales. Similar legislation exists in Scotland and Northern Ireland. The Orders empower the Agriculture Departments of Great Britain to take measures to control American foulbrood and European foulbrood which are very serious bacterial infections of the immature-stages of bees (brood) and puts in protective measures against the Small hive beetle, *Aethina tumida*, and *Tropilaelaps* spp. mites. These latter two pests are currently not present in the UK and hence are classed as exotic threats to UK apiculture. Separate, ‘non-native species’ legislation covers action to be taken against the Asian hornet, *Vespa velutina nigrithorax*. More information about the Asian Hornet can be found on the ‘Asian Hornet’ page of BeeBase <http://www.nationalbeeunit.com/index.cfm?pageid=208>.

Figure 13: Small hive beetle is a notifiable exotic pest



How will I manage my bees?

Figure 14: *Tropilaelaps* spp. mites are notifiable exotic pests



Imports and exports

The same legislation also covers the rules on import and export of bees. This controls the movement of honey bees between countries to prevent the introduction of exotic bee diseases. Under present policy queen bees and attendant worker bees may only be imported from outside of the EU from a limited list of countries.

There is guidance available on the Legislation, Imports and Exports pages of BeeBase: <http://www.nationalbeeunit.com/index.cfm?sectionid=47>.

Varroa

Although *Varroa* is not covered under the Bee Diseases and Pests Control Order 2006, the National Bee Unit provides comprehensive advice and training for beekeepers on how to manage this very serious hive pest. Helping beekeepers manage *Varroa* is a major priority enshrined in the Healthy Bees Plan and National Pollinator Strategy. It is arguably the number one management problem for beekeepers across the world.

Honey

Bees are currently designated as a food producing species and as such they and their products are covered by many aspects of food

law. The underlying rationale for this is to ensure that the consumer is protected by ensuring that products entering the food chain/market are deemed safe for human consumption.

Food and Drugs Laws

- UK Honey Regulations and the EU Honey Directive governing the labelling and composition of honey for sale in particular;
- Food labelling Regulations;
- Food and Environmental protection legislation;
- Food Safety;
- Veterinary Medicines law.

Much of this information is available online on BeeBase, the National Bee Unit website. Advice can be obtained from the NBU or from the Department that takes the lead on the particular policy. So for example the Food Standards Agency for food matters, the Veterinary Medicines Directorate for Medicines advice.

Putting it all together

To become a successful beekeeper you will find you need to understand many things: the biology of the bee, the changing season, plants and botany, queen rearing, honey bee races and characteristics, bee hive construction, honey extraction, preparation and bottling of honey for market, beekeeping equipment, seasonal colony management, good husbandry, bee pests and diseases, apiary hygiene and biosecurity, Integrated Pest Management (IPM), veterinary medicines and their use, packaging and marketing, business management (how to sell), sources of information and support, the beekeeping associations, research and regulatory organisations and international bodies along with an understanding of the relevant legislation.

This is a long list, but do not be deterred. It is because there are so many different aspects to beekeeping that it can become such an interesting, absorbing and rewarding pastime.

Where can I get more help?

Where can I get more help?

More details about this fascinating creature can be found in many books and on reference websites. Your local beekeeping association may have a library of bee books available for loan.

Example reference books

There are many books available on beekeeping from the biology of the honey bee, microscopy and adult bee disease to queen rearing and advance husbandry techniques. Getting the basics right is essential and there are many books suitable for new beekeepers. There is a 'useful links' page on BeeBase which lists some useful websites.

Figure 15: The Asian hornet is a notifiable pest under the Non Native Species legislation



Beekeeping Associations

Joining a local beekeepers' association is recommended as this will put you in contact with local beekeepers who can help and advise you throughout the season and may even be able to find you a mentor. The Association will also have information about courses being organised. Most associations will hold a beginners class for aspiring beekeepers and it is recommended that anyone thinking of taking up the craft attend courses to find out whether beekeeping is suitable for them. The Association may also have a library from which

books and other literature can be borrowed plus links to useful internet resources and information about courses being organised. Contact your local association for more information.

England - www.bbka.org.uk;

Wales - www.wbka.com and

the Bee Farmers Association – <http://beefarmers.co.uk/>).

BeeBase

BeeBase is the NBU's award winning website. It provides a wealth of information about beekeeping practices. There are pages dedicated to providing advice and answering the most frequently asked questions (FAQs) received at the NBU: <http://www.nationalbeeunit.com/public/faq.cfm>.

There is also a photo gallery to assist with educating beekeepers on the recognition of bee pests, diseases and common disorders. It would be a good idea to spend an evening familiarising yourself with what is on the site, so go ahead and visit it at <http://www.nationalbeeunit.com>.

BeeBase contains all the apicultural information relating to the statutory bee health programme in England and Wales. In June 2010, the information for the Scottish inspections programme was also incorporated into BeeBase. BeeBase contains a wide range of beekeeping information, such as the activities of the NBU, the bee related legislation, pests and diseases information including their recognition and control, interactive maps, current research areas, publications, advisory leaflets (including this one) and key contacts. To access this information visit the NBU website (www.nationalbeeunit.com). Many beekeepers find this website to be a very useful source of information and advice. In addition to the public pages of the BeeBase website, registered users can view their own apiary records, diagnostic histories and details.

Your Local Bee Inspector

Although the Bee Inspectors primary role is their Statutory duties, they are on hand to offer one-

Where can I get more help?

to-one training and advice. Occasionally they may also carry out apiary safaris in conjunction with local associations where they will inspect a group of apiaries in the area and offer advice and tips on how to look out for diseases and pests. To find out who your local Bee Inspector is, visit the contact pages of BeeBase and enter your postcode in the 'Find my nearest inspector' box: <http://www.nationalbeeunit.com/public/Contacts/contacts.cfm>.

eLearning

Once you are registered on BeeBase, you will be able to access the eLearning facility by logging into your BeeBase account. You will then find an eLearning tab to the left, on the navigation panel. Each module has been written and constructed in accordance with our current practices and the most up-to date knowledge. They have been produced by a team of highly skilled personnel which includes a specialist eLearning company and the NBU Bee Inspectors. They offer an alternative way of learning, in your own time and at your own pace. The eLearning delivers a 'learning on the move' experience that is increasingly craved in a modern society and the chance to access well informed, structured training completely free-of-charge. eLearning gives those beekeepers who are unable to attend practical training events the chance to take responsibility for their own development. All material included in our advisory information is created to supplement the Healthy Bees Plan (HBP).

Equipment suppliers

There are a number of beekeeping equipment suppliers in the UK. They each have websites and produce informative illustrated catalogues. More information can be found on the Advice for New Beekeepers page of BeeBase.

The National Bee Unit

The National Bee Unit (NBU) provides an integrated statutory and advisory service to beekeepers in England and Wales. It provides diagnostic, consultancy and research services to Defra, Welsh Government, the Scottish

Government, commerce and beekeepers. The NBU is a recognised centre of excellence for the provision of advice and research in bee health. The Unit's laboratories are fully compliant with ISO 9001 quality schemes to ensure a high professional standard, and use as a base, the Office International des Epizooties (OIE) Manuals of Standard diagnostic tests for laboratory diagnosis. Most staff are trained practical beekeepers as well as scientists and are supported by teams of specialists across the Animal and Plant Health Agency (APHA) and Fera Science Limited (Fera).

The Unit, based in the National Agri-Food Innovation Campus, Sand Hutton has modern facilities, including laboratories and the apiary buildings needed to support the 150 colonies that are managed by the Unit. Computer support for all services is provided through BeeBase.

The NBU provides a bee health inspection and advisory service which operates in England and Wales. It comprises of a regional network of Inspectors. The head of field inspection services is the National Bee Inspector (NBI). Regional Bee Inspectors (RBIs) reporting to the NBI manage teams of Seasonal Bee Inspectors (SBIs) throughout England and Wales. As well as the statutory inspections and apiary surveillance programme, Bee Inspectors provide free advice and assistance to beekeepers on a range of bee health issues and run training courses for beekeepers on disease recognition, disease control and good husbandry, often in conjunction with local beekeeping associations. The NBU team delivers around 500 training events every year. Bee Inspectors also assist with field trials within the NBU's Research and Development programmes.

For further information contact the NBU, who will put you in touch with the appropriate Bee Inspector for your area, or visit the key contact pages on the NBUs BeeBase website. (<http://www.nationalbeeunit.com/public/Contacts/contacts.cfm>).

The NBU has broad research and development interests and it's current list is outlined on BeeBase <http://www.nationalbeeunit.com/indexcfm?sectionid=48>. Our portfolio covers varroacide development, EU-wide colony

Where can I get more help?

loss surveillance, risk assessment and novel control methods for exotic pest threats (e.g. *Tropilaelaps*, Small hive beetle and Asian hornet), and the economics and biology of pollination. The NBU was a contributor within the Insect Pollinators Initiative (IPI) (www.bbsrc.ac.uk/pollinators), leading research into systems that model the epidemiology of disease to enable improved management in the future. We are also using advanced molecular techniques to identify specific bacterial strain types, which will add to our understanding of the spread of serious brood diseases. The NBU works in partnership with many Universities and Organisations both in the UK and overseas to achieve these shared research goals.

Why is it important to register on BeeBase?

As well as containing useful information on beekeeping, BeeBase is a vital tool in the control of bee disease and pests. Where statutory pests or diseases (for example, foulbrood) are confirmed, the NBU can use BeeBase to identify apiaries at risk in the local area and, as a result, target control measures effectively. By knowing where colonies are, we can help you manage disease risks in your apiaries. Risks include the incursion of serious exotic pest threats such as *Tropilaelaps* mites and the Small hive Beetle, *Aethina tumida*. The more beekeepers who are registered, the more rigorous our bee health surveillance can be and, crucially, the better are our chances of eliminating pests and diseases.

How to sign up to BeeBase

If you are not yet registered please visit the public pages of Beebase at : www.nationalbeeunit.com where you can sign up online. Otherwise you can get in touch with the NBU office team who will be happy to help. You can email us at: nbu@apha.gsi.gov.uk or contact us by telephone on: 03003030094. By telling us who you are, you will be playing a very important part in helping to maintain and sustain honey bees for the future.

How do I know that my details will be secure?

All of the information that you provide for the purposes of registration on BeeBase is covered by the Public Service Guarantee on Data Handling (see Confidentiality page of BeeBase). In addition, all data will be handled according to rules stated in the Data Protection Act, 1998. All levels of access to BeeBase are protected in the same way as on line banking. Your personal access is password protected. When you first register you are allocated a temporary password, which is valid for your first visit only. You will then be prompted to set your own password. You need to ensure that your own password remains confidential. You will also be allocated a personal ID Number, which relates solely to you.

As a registered beekeeper, once you have received an inspection visit, you can check your own record on BeeBase. If you wish, you can make use of the apiary records system to record your personal apiary visits. The inspectors and NBU staff will have access to your records, but will not disclose to others that you have been inspected or any details about you, your bees or beekeeping without your consent. Although BeeBase includes public pages containing information about disease, colony losses, leaflets, useful links and much more general information, the public has no access to your or other beekeepers' details.

Useful addresses

National Bee Unit (NBU)

Sand Hutton, York,
North Yorkshire, YO41 1LZ
Tel: 0300 3030094
Fax: 01904 462240
Email: nbu@apha.gsi.gov.uk
Web: www.nationalbeeunit.com

Office of the Chief Veterinary Officer

Department for Environment and
Sustainable Development
Hill House, Picton Terrace
Carmarthen SA31 3BS
Tel: 01267 245007
Web: www.wales.gov.uk

Scottish Government

Pentland House, 47 Robb's Loan
Edinburgh,
Scotland EH14 1TY
Tel: 01312 446178
Web: www.scotland.gov.uk

**Science and Advice for
Scottish Agriculture**

SASA, Roddinglaw Road
Edinburgh, Scotland EH12 9FJ
Tel: 01312 448890
Fax: 01312 448940
Email: info@sasa.gsi.gov.uk
Web: www.sasa.gov.uk

**Department of Agriculture,
Environment and Rural Affairs
Northern Ireland**

Dundonald House
Upper Newtownards Road
Ballymiscaw
Belfast BT4 3SB
Tel: 02890 24488
Web: www.dardni.gov.uk

**Agri-Food and Biosciences
Institute (AFBI)**

Newforge Lane,
Belfast, BT9 5PX
Web: <http://www.afbini.gov.uk>

**Veterinary Medicines
Directorate (VMD)**

Woodham Lane,
New Haw, Addlestone,
Surrey KT15 3LS
Tel: 01932 336911
Web: [https://www.gov.uk/
government/organisations/
veterinary-medicines-directorate](https://www.gov.uk/government/organisations/veterinary-medicines-directorate)

**Office of Public Sector
Information**

(copies of European Community
and UK Legislation)
Web: www.opsi.gov.uk

British Beekeepers' Association

(county and local beekeeping
associations)
National Agricultural Centre,
Stoneleigh,
Warwickshire, CV8 2LG
Tel: 08718 112282
Web: www.bbka.org.uk

Welsh Beekeepers' Association

Web: www.wbka.com

**Scottish Beekeepers'
Association**

Email: [secretary@
scottishbeekeepers.org.uk](mailto:secretary@scottishbeekeepers.org.uk)
Web: [www.scottishbeekeepers.
org.uk](http://www.scottishbeekeepers.org.uk)

Bee Diseases Insurance Ltd (BDI)

Registered Office
National Beekeeping Centre,
NAC Stoneleigh Park,
Warwickshire, CV8 2LG
Tel: 08718 112337
Web: [www.beediseasesinsurance.
co.uk](http://www.beediseasesinsurance.co.uk)

References and acknowledgements

References

All images are courtesy of the Animal and Plant Health Agency (APHA), Crown Copyright unless otherwise stated.

Figure 1, Strong colony, Peter J Haynes;

Figure 5, Honey bee drone, Graham Royle

Figure 8, A manual 4 frame extractor, Abelo Beekeeping Supplies

Figure 11, Beekeeping mentors, Graham Royle

Figure 15, Asian hornet, copyright Jean Haxaire

Figure 9, Hives placed on strong stands, David Packham

More information about the Asian hornet can be found on BeeBase our Asian hornet pages: www.nationalbeeunit.com/index.cfm?pageid=208

More information about the Small hive beetle can be found on our Small hive beetle pages: <http://www.nationalbeeunit.com/index.cfm?pageid=125>

Acknowledgements

This leaflet was written and produced by the National Bee Unit, part of the Animal and Plant Health Agency.

Acronyms

APHA	Animal and Plant Health Agency
BBKA	British Beekeepers' Association
Defra	Department for Environment Food and Rural Affairs
Fera	Fera Science Limited
HBP	Healthy Bees Plan
ISO	International Organisation for Standardisation
NBI	National Bee Inspector
NBU	National Bee Unit
RBI	Regional Bee Inspector
SBI	Seasonal Bee Inspector
SHB	Small hive beetle
VMD	Veterinary Medicines Directorate
WBKA	Welsh Beekeepers' Association
WG	Welsh Government

Notes

Notes

Notes

Notes



Animal & Plant Health Agency