



South Tipperary Beekeepers Association

Newsletter

September

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EDITORIAL

Greeting to all fellow beekeepers. How time flies. It seems like a very short time since our April newsletter when we were talking about the start of the active season and now we can look at the close of another bee year, the crab apples are turning colour, a sure sign that Autumn is definitely here. It demonstrates to us all the importance of having your bees in prime condition to take advantage of those few warm days between the rain. This year was no exception June and July were certainly not great weather months. However our bees did seem to do the business and anyone that managed their bees did get a good return. Managing your bees relies on a certain element of luck but the beekeeper also needs a very high skill level to assess his colonies, control swarming, disease, requeening, supering and all those other jobs that may look simple but ask any frustrated beginner how easy it is. You will only attain this level if you persist and are willing to accept failure but most of all attend all lectures, classes and outdoor demos.

UNITE OR DESTROY?

Autumn is often the time of year when the bee keeper is thinking and talking about uniting colonies. Intentions are always good, to give a few weak colonies the best chance of survival by uniting. Before a bee keeper goes down that route they should question the pros and cons of such an action. Uniting a weak with another weak doesn't always end with a strong colony. The pros and cons of such an action are many. The pros are that you have a larger colony that can better withstand the winter months. The cons are that you may have a larger colony that is more difficult to manage and may have a higher risk of disease and parasites. It is important to weigh the pros and cons carefully before making a decision.

colony. The most important aspect is to ask why this colony is weak. There can be many and varied reasons but usually it can be confined to one or two. Presuming that the colony has been there for a month or two and not made up at the end of the bee year it should have grown to a size when it is a stand alone unit.

The beekeeper should critically examine these colonies. Did it have enough food to expand or was it short since it was first established. Well if the answer to that is yes then it is you who should take the blame. There may still be time to build it to a size that it would survive by feeding and adding frames of bees and brood from a stronger colony. Always remember that the queen is the determining factor when it comes to colony development. You need to assess the queen. If the nuc was made up using an old queen, has she gone past her best and no longer has the ability to lay a sufficient no. of eggs to expand. Young queens also need to be assessed on their egg performance. Check the brood pattern. Are there many empty cells between the sealed brood? Measure out a 100 cells and count the misses. Some queens can have as many as 30-40 empty cells per 100 counted. Such a colony will not develop. The brood viability should be greater than 90. Uniting two such colonies is of little use. Sometimes you can have a drone laying queen. Again this can be established by examining the brood pattern. Drone brood will hatch in the worker cell with doomed shaped cappings. Such a colony will not survive. Again like the queen with the misses in the brood you can also find a queen with a lot of doomed cell dotted in among the worker brood. This is an early warning that the queen is starting to fail and needs to be replaced. A colony with laying workers is doomed and will also destroy a good colony if united to them. Better destroy such a colony. Disease of any type will always slow down the development of a colony. Varroa, AFB, EFB should always be checked and appropriate action taken if a problem exists. Nosema and Acarine are sometimes referred to as the "silent" disease and a microscopic examination is needed to assess whether or not a colony is infected. Over wintering colony with either of these two diseases will result in a very weak colony the following spring. The number of bees in a colony is important and any colony that has an insufficient number of bees cannot expand. All of the above should be considered before you decide to unite or destroy the colony. Remember to improve the overall performance of all your colonies you need to cull the worst. Autumn is a good time to start. So to successfully unite colonies the resulting colony should have:

- 1) A good laying queen
- 2) Sufficient bees
- 3) Sufficient Stores
- 4) Disease free

If the above cannot be attained it is better to destroy these weak colonies and clean and sterilise the hives for another season.

BUMBLE BEE

Queen bumblebees emerge from hibernation between March and May depending on the individual species, weather conditions and geographical location

Once a fertilised queen has emerged in the spring her first task is to replenish her loss of fat bodies used up during the winter months of hibernation with pollen and nectar from suitable flowers. The queen also needs the pollen and nectar to develop her ovaries.

She then needs to find a suitable location for a nest to form a new colony. While there may be plenty of nest sites it is the quality of the surrounding nectar and pollen sources that are critical to the rearing of the first workers. These together with a continual forage source are essential to the future of the queen and the colony.

It is quiet common in spring time to see queens flying low to the ground or crawling amongst vegetation as they inspect potential sites.

The nest site chosen is usually in a warm situation and needs to be well insulated e.g. old mouse nest. These may be in a hole in the ground or on the surface depending on the species and the suitability of the site.

Once the nest site has been selected the queen makes a honey pot from secreted wax which she fills with nectar. This will provide her with a food source during inclement weather and whilst she is brooding her first young. Over the same period of 2 – 3 weeks the queen collects pollen to form a large lump which is a bit bigger than her body. On this she lays a few eggs. These hatch into larvae which become the first workers. In order to speed up their development the queen lies across the pollen lump and incubates it even buzzing her wings to generate heat.

The larva goes through several moults and then they produce a silken cocoon when they pupate. After a few weeks the first adult workers emerge from their cocoon. They are usually very small compared to the queen. It takes a little time for the newly emerged workers coat of hair to dry and about a day for its wings to harden sufficiently for foraging duties. Nest duties include building new cells, feeding larvae and helping new workers to emerge from their pupae. Foraging provides food for the colony nectar for the adults and pollen for the developing larvae.

Bumble bees will fly up to 400m or more from the nest to find forage resources and can generally find new supplies if needed. However they do need suitable forage during the life of the colony from April – September. Any loss in forage can result

in colony loss.

While the workers are engaged in nest and forage duties the queen concentrates on producing more offspring. The workers produced later in the year are bigger than the first hatched but smaller than the queen. Number of workers in a colony can vary depending on its success, species ranging from 40 – 150+.

Towards the end of the season some of the eggs laid by the fertilised queen develop into new queens rather than workers. Queens also produce males at the end of the season when they come to an end of the sperm stored in a special organ from mating the previous season. Once males and queens have been produced the colony has essentially served its function. The males after having mated die in the late summer early autumn as do the old queen and workers.

Following emergence the new queens may stay around the nest for a while. Eventually they mate then forage to build up their fat body reserves for hibernation. They seek a suitable hibernation site usually a North facing bank beneath the bark of a rotten tree and remain there until the next April to start the season again.

Bee Joke from Joe Marron When does B follow U ? When you rob her honey.

SUPERSEDURE . . . IRENE POWER

Of course we all know that supersedure is the process by which an old queen bee is replaced by a new queen. It can be initiated due to old age of a queen or a diseased or failing queen. As the queen ages her pheromone output diminishes. Older queens are superseded more frequently than younger ones, possibly because of the age difference in queen pheromone production. Generally, no swarms are produced when colonies supersede their queen, but when a swarm does issue, it contains a new virgin queen rather than the old mated queen. It can occur at any time of the year. Some books suggest that colony size may influence whether a colony swarms or supersedes its queen; large colonies being more likely to replace their queen by supersedure. This could reflect a strategy of delaying reproduction until the following year, thereby increasing the chance of successful overwintering by entering the winter with a young queen.

Last Autumn I had the pleasure of beekeeping with the then Beekeeper of the Year who of course has the perfect bees that carry out “perfect supersedure”. On inspection of one of the hives he found a supersedure cell & decided to leave it there as he had planned to replace the 2yr old queen anyhow and was delighted that the bees got there before him.

After rigorous examination of the hive a couple of weeks later, both queens were found, (anyone could find one!). The new queen was given a blue dot, old queen in red and both posing in splendid grandeur for the photo shot. The tolerance of the old queen presumably is due to her diminished pheromone production but it also ensures the presence of a laying queen even if the virgin queen fails to return from her mating flight.

It's important to be able to recognize supersedure cells and experienced beekeepers always seem to be very sure and definite when they find them. A cell hanging off the middle of the frame somewhere is usually a supersedure or “emergency” queen cell & they are often fewer in number. A cell hanging off the bottom of a frame is usually a swarm cell. Supersedure cells are often begun after the eggs are laid. The bees, knowing they need to replace the queen, begin feeding royal jelly to young larva they have selected. They build a supersedure cell around this larva (or several larvae) and it hangs down the face of the comb. Swarm cells, however, are built in preparation for swarming and are not intended to replace the queen, but to raise a second queen. This way, there will be a queen for the part that swarms and a queen for the part that stays.

A LITTLE BIT OF SCIENCE

In our newsletter last September we spoke about the Post- cerebral and thoracic gland and the mandibular glands which are parts of the Exocrine system. These glands are extremely important to the survival of the colony. There are several others two of these glands are very well known to non-beekeepers and these are the sting and the wax glands. The others are related to the day to day running of the colony. The following is an account of these glands and the part they play.

The Hypopharyngeal glands are located in the workers head one on each side It secretes a clear liquid which combines with secretions from the mandibular glands and is known as brood food or royal jelly. This brood food is fed to the larvae. The bees using its mandibles to direct the brood food into the cell. The size of the gland depends on the duties and it is at its largest where the bee is a few days old working as a nurse bee. Later these glands shrink and are the source of invertase in the foraging bee. It is possible for a foraging bee to reactivate its food gland by consuming large quantities of pollen. Nosema tends to atrophy the glands prematurely. Viruses causing ABPV and Sacbrood are both to be found in the hypopharyngeal glands. Sacbrood virus is probably fed to the larvae by the infected nurse bees. Brood food is made up of proteins, several vitamins of the B group, vitamins C and D but not E, 10HDA from the mandibular. The Renner Baumann glands are located on the free edges of the abdominal tergites A3, A4 and A5 of the queen. The court bees pay particular attention to the queen's abdomen. The Queen grooms herself 2-4 times every hour spreading a combi

bees pay particular attention to the queen's abdomen. The Queen grooms herself 3-4 times every hour spreading a combination of her pheromones over her exocuticle. The pheromones from the tergite glands and the mandibular inhibit ovary developments in worked bees, inhibit the building of queen cells and stabilise the court of bees.

The Nasonov gland was discovered by Nasonov (Russia) in 1883 and is known as the "come and join us" scent. Easily observed when a worker bee flexes the top of its abdomen downwards. The Nasonov gland is then exposed on the dorsal surface of the 7th abdominal segment. It consists of glandular cells which secrete pheromone through c. 600 ducts into a groove between the 6th and 7th tergite.

Honeybees release pheromone from this gland when:

- ✦ Flying in a swarm to attract other bees
- ✦ Marking the entrance to the hive

Marking a source of H₂O or when they are foraging for water or syrup (odourless)

The sting scent glands are believed to be located on the inner surface of the quadrate plates. The pheromone is a powerful alarm pheromone the main chemical being isophentyl acetate which inhibits foraging and scenting.

This alarm pheromone elicits a stinging response in other bees and recruits other workers to act as guard bees. It should be noted that bee venom does not elicit a stinging response, only the alarm pheromones do this i.e. isophentyl acetate and 2-heptanone.

Arnhart gland is found on the 5th tarsomere of each leg of Queen and Worker. It produces a foot print odour. This is essential for suppressing queen cell production. It is because the queen cannot get above the excluder that we are able to get queen cells drawn in the top box. Foragers leave a foot print odour on flowers they visit indicating to other foragers that this flower was already visited. The odour lasts for 4 hours at 25°C and 4 days at 5°C. In our next newsletter we will discuss the sting and wax glands.

RECOGNISE AND PREVENT ROBBING—IRENE POWER

Nature teaches bees to search for food and any they can find by fair or foul means they consider their own property. They have little respect for each other when it comes to food stores. If you ever see full scale robbing in an apiary you'll have no doubt what is happening. I have experienced it once and it was like complete mayhem in the apiary, bees flying rapidly in zigzag fashion in front of the hives & swirling around the air like a tornado. They are aggressive and frequent fights at the hive entrances can be seen. Thankfully it's not always this bad. It is important to recognise robbing, make corrective action and prevent as much as possible. It is a means by which disease is spread in the apiary and can result in loss of nucs or weak colonies. It can become an increasing problem this time of the year but however is not usually a problem for the careful beekeeper.

Some tell tale signs are bees hovering nervously and side ways flight pattern at the hive entrance. Fighting at the hive entrance, though not always evident as in the case of silent robbing. Flight path from robbers hive to robbed hive can be spotted. Robbers will be entering the hive with empty abdomens and leaving with full bellies. With close scrutiny this can be identified as the bee fly with the rear legs forward when the abdomen is full and with rear legs trailing when the abdomen is empty, opposite to normal appearance as they enter & exit the hive.

Difficult to stop once it has started but some actions which can be taken:

- Reduce entrances and cover cracks or openings
- Place some grass at the hive entrance
- Remove robbers to isolate site from other colonies

As with everything prevention is better than the cure and here are some points on how to manage your bees to prevent robbing:

- Best time to inspect bees is on warm sunny days when there is a flow on. They are less likely to rob in this instance.
- Bring bucket for brace or burr comb and cover it & bring it home and don't leave around the apiary.
- Bring some water in a sprayer to clean up any nectar or honey spills
- Feed syrup in the evenings when bees have stopped flying. Make sure you have no leaky feeders
- Wet combs – do not leave supers with honey or supers of extracted combs where bees can rob them. If putting wet combs back on the hive – do this in the evening when flying has stopped.

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Keep strong colonies so they can defend themselves. Determine cause of weak colonies and take action for example if disease free, requeen. Do not overwinter weak colonies.

Close up any dead colonies & ensure they are bee tight.

Reduce entrances in the Autumn or at any time of the year if the colony is weak.

NOSEMA PROBLEMS

Nosema is always a disease that we hear a lot about in the spring time. Very few beekeepers think or worrying about it now. However the infection you see next spring is probably already in your hive infecting a small amount of your bees. As the bees start to cluster in close contact with one another and are confined to the hives for long spells the infection spreads and by next Spring you see the tell tale signs of Nosema often resulting in the poor build up or loss of the colony. Nosema is a microsporidian parasite of the adult honey bee. To date there are two forms of the disease. Nosema apis is the most common form but recently there has been outbreaks of Nosema ceranae. These notes refer to Nosema apis. The spores can only be detected under a microscope.

Nosema is a spore forming disease. Spores occur within the hive especially in the brood nest. As the nurse bees clean out the cells they ingest the spore and then transmit it to the larvae it can also be transmitted by water, food transfer from one bee to another and removing crushed infected bees. It affects workers, drones and the queen.

The spores germinate in the gut and enter the digestive cell that lines the mid gut where they multiply rapidly. This inhibits the digestion of the pollen which in turn reduces the production of brood food. This in turn results in the reduced life of the worker and also its ability to rear brood. The net result of this is that the colony fail to build up at a normal rate and in severe cases will result in the death of the colony. This is often seen in spring time and is referred to as "spring dwindle". Queens that are infected usually have a reduced egg laying capacity and are often superseded. Nosema is often associated with several viruses such as the black queen cell virus. Positive identification of the disease is by microscopic examination. However, there are outward signs that the beekeeper can take note of such as the slow build up when compared to other colonies. Also because the spore attacks the digestive system it can result in the bees suffering from dysentery. Infected workers defecate on the outside of the hive usually around the entrance or in severe cases on the combs.

Nosema is a stress related disease so the best prevention is to avoid stressing a colony. Small weak colonies are always under more stress to maintain a viable unit. For over wintering it is important that only strong colonies headed by a young queen with plenty of bees and store are maintained. Good hygiene with in the hive helps to reduce the spore level.

Change combs on a regular basis at least 4-6 combs should be replaced every year in the brood box. If a colony dies out any combs you intend to use again should be sterilised with 100 ml 80% acetic acid for 1 week at 15° Remember giving infected combs to a good colony will cause it to be infected with the disease. Changing all the combs in the brood box and giving a new floor board and crown board is even a better idea and is known as a Bailey frame change (watch our spring edition for details) Transporting bees to crops can stress the bees and result in higher incidents of disease

Prevention is better than cure so try to maintain healthy colonies with a good varied diet, young queen and avoid crushing bees, changing combs on a regular basis.

ASSOCIATION NEWS

Once again our association was very busy throughout the year. We managed to recruit a few new members onto the committee. These new members are the life of any association, hopefully bringing an energetic workforce with fresh ideas. We had a good line up for our spring lectures. It was disappointing at some of the attendance. Our study group was again well attended. Our senior class was headed by Mary Ryan. The intermediate class was chaired by Dennis Ryan. The beginner's class brought 25 new members to the club. Next season we hope to run the intermediate class and also an advance practical class for our 2-5 year old bee keepers. More details later.

We now have our own logo. Thanks to Irene for the initial idea. Edel Power for the first drawing and Adrienne Horan for getting it onto the computer.

We are starting to get our fact sheets onto the website. Check it out on a regular basis as we hope to update every few weeks. We are always looking for new ideas and new members.

Apiary upgrades: Great work by Redmond and Tom for completing stage two of this very important work. This year a shed and new hive stands were purchased for Powerstown. Replacing all old frames and wax was also achieved. Other bits and pieces were also added. Queen excluders, feeders, crownboards and a new extractor. The misfortunate side to all this good work was that two hives were stolen from our apiary in Garyclougher. Nuc production from both apiaries provided enough nucs to satisfy the demand from all of our beginners. Several aspects of beekeeping were covered during the demonstra-

tions, handling bees, spring build up, feeding, queen cell destruction, artificial swarm, Bailey frame change.

CHRISTMAS PRESENT

Beekeepers like everyone else like to get a Christmas present or two. Non beekeepers struggle as to what to buy them. Well there are many and varied ideas. A book is always a good starting present. If you have a beginner in the house, a good books is "Starting out with Bees" by John Williams. It is illustrated with simple explanations on all aspects of beekeeping. If you are buying for the more advanced beekeeper a very popular book at the moment is "Queen Breeding and Genetics" by Eigil Holm. Again this book is well illustrated but the content is very detailed in certain chapters. If you want good practical advice on all aspect of beekeeping you cannot go wrong with David Cramp's "A Practical Manual of Beekeeping" A good copper smoker will always make a great present buy a large one. If you want to be extravagant why not book a week at the Gormanston summer course. Look up Thorne's web site for more ideas.

THE 2010 SEASON

Reports vary from one beekeeper to another as from one area to another. Some have great crops other disappointed. Queen mating again varying reports from "very happy" to "could be better". Whatever you got learn from your mistakes and remember those two famous word from the lips of all good beekeepers "next year"

FAR AWAY HILLS ARE GREEN

On a recent trip to Germany I was told that they are having similar weather to us. Flying in to Berlin and then travelling by train one could not help but notice the lack of ditches, thousands of hectares of land all neatly laid out but no ditches, which means no briars, no hawthorn and most of the small plantations of trees were coniferous and of little value to the bees. OSR is very popular in the Spring time but the consumers do not like the flavour. The Lime tree is very popular in the cities and its honey is in big demand. Hopefully we will always have the forage and if we maintain strong colonies then any few days of sunshine and we will get a crop. This year proved that.

Buzz about the Bee Keeper



Watch out for details of our study group, starting in October.

Clonmel Honey Show September 24th - 25th Enter at least a few classes. It's great fun, you'll improve your presentation skill and who knows you might win a prize. Stage your entries on the 24th and show open to public on the 25th. Bring a friend

The following plants were all flowering in August - September and all yielding nectar or pollen. Spear Thistle, Ragwort, Willow Herb, Himalyan Balsam, Heather, Meadow-sweet, Cornflower, Hollyhox. Look them up and try to identify in the countryside.

We hope to run classes over the coming month for beginners to more advanced. Watch out for details on www.southtippbees.com

Well done to Mary Ryan on achieving her lecture exam. Mary gave a very good lecture in Gormanston on "Simple Genetics". Mary hopes to lecture on the scien-

tific aspects of beekeeping.

Congrats to our senior class on completion of the course and hopefully all did well in the exams.

Check out our web site on www.southtippbees.com