

BeeZeen – Winter (almost) 2019

Welcome to Westerham Beekeepers' Winter (almost) BeeZeen, a canter around beekeeping in our local area.

It's been a wet and chilly Autumn in the locality reducing late foraging opportunities. The heavy downpours tend to wash off nectar and pollen from exposed ivy blossom in particular. So keep hefting to judge lighter colonies.

In this edition, we look at:-

- > Winter pollen
- > Why honey crystallises
- > Checking the winter colonies without taking the lid off
- > Xmas gift (for you!)
- > Natural beekeeping update

Winter pollen

Just occasionally, unseasonably warm days allow our bees to venture on brief foraging trips. Any pollen gathered will make a much needed contribution towards the food for raising early brood from January onwards. In February, brood development is in full swing, especially towards the end of the month, requiring increasing amounts of pollen. Fresh pollen has c50% more protein value than stored pollen.

Here are some of the local favourites which bloom in the coldest of conditions.



| | |
|------------------------------|--------------|
| Mahonia | Nov-Mar |
| Winter Aconites | Jan+ |
| Winter flowering honeysuckle | Jan+ |
| Snowdrops | late Jan-Feb |
| Witch hazel | late Jan-Mar |
| Hellebore | late Jan-Mar |
| Crocus | Mar |

Honey granulation

Your bees have produced a wonderful surplus of honey, which is sitting there in a carefully choreographed stack, attracting shards of sunlight. Beekeeping pride ripples through you as yet another picture is taken and you ponder who it could be sent to....

But then you see it..... frosting creeping down the jar. Your honey has begun to granulate – why?



All honey naturally granulates – you don't see it much in supermarket "honey" as it has been (*over*) heated and filtered extensively for commercial purposes (*being generous here*).

Here's the challenge: *How do you get in a jar: 80% sugar and 20% water....and keep it liquid?* It's quite a feat. The sugar is unstable in a saturated liquid. Crystallisation returns the sugar to a stable condition, so it will naturally try to do that (with a few exceptions).

Fructose vs glucose

Honey has 2 main sugars: fructose and glucose. The ratio varies by plant but average 40% & 35% in the UK (*ref: Hooper*). Fructose dominated nectars (eg; blackberry) granulate slowly and develop large crystals which are grainy & course on the tongue. Fructose is considerably sweeter than glucose and a good blackberry flowering produces that wonderful light summer honey.



Glucose dominated nectars are the culprits for rapid granulation. Glucose is less soluble in water than other sugars and therefore more unstable in the nectar solution. Flowers with a high glucose content in our area include ivy, dandelions and oil seed rape, with the latter having a glucose content as high as 58% (*ref: Univ of Exeter*) versus the UK average of 35%.



The rapidity of the granulation forms really small crystals that look white in the jar. It sets rock-hard, but is a perfect mixer with liquid honeys to make "Soft Set" - formerly known as "Creamed" honey.



What triggers crystallisation?

Crystals usually form around suspended particles in the honey - think pollen grain, minute crystals invisible to the eye, air bubbles, wax particle or dust (*or dandruff!*).

Frosting (*see pic at the start of this section*) occurs in honeys that granulate rapidly (typically glucose dominated) where air bubbles are trapped between the honey and the side of the jar, often towards the neck. Unsightly, harder to sell, but no change to the flavour.

Temperature:

14'c is the optimum temperature for granulation to occur.

Over 20'c slows down the process as molecules whizz around and crystals can melt.

Under 10'c increases viscosity of the honey and slows down molecule movement. It also stops yeasts being active, reducing the risk of fermentation.

Winter monitoring of your colonies

6 ways to monitor your bees over winter without opening the hive.

Have you started panicking yet? Wondering what's going on in the hive? Can't possibly wait til Spring to peep inside? Here are 7 non-invasive ways to monitor your bees without opening the hive:-

1) Through a perspex crown board.

Shine a torch to see the bees clustered or how many sealed frames of honey they have left. Also useful to monitor any damp on the crownboard.



2) Monitoring the wax clippings on the varroa board shows where the cluster is uncapping cells and accessing stores. You can monitor the cluster moving around.



3) Stethoscope to listen to the low, happy hum of the cluster. £7 on eBay. Don't let your neighbours' see you.

4) "Up n Under" Bee-selfie: use your phone, with the light on, to take pictures up through the open mesh floor. Or even a short video. You may be able to see the cluster or just check the level of dead bees on the floor 😊



5) Infra-red camera from FLIR that clips on your phone (puleeeez Santa!)



6) Endoscope with a light on: here's a link to see one in action.

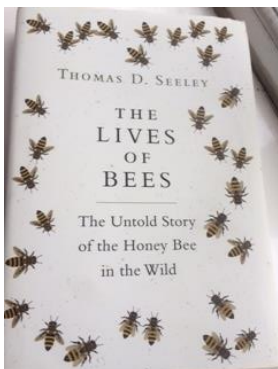
<https://m.youtube.com/watch?v=dNXNCVPIQJc#fauxfullscreen>

Christmas gifts

We are easy targets for bee labelled prezzies from our non-beekeeping loved ones – dishcloths, T-shirts, brooches, cuff-links, mugs, honey beer (hmmm), mead (Yes), honey infused vodka (YESSSSSS!) etc.....

What they won't know to buy you is the following essential book. It's Prof Tom Seeley's latest and focuses on learning from the bees in their natural feral state in the Arnot forest. It's stuffed full of learnings (& challenges) for modern day beekeeping.

Why not ask Santa directly? He is often seen sipping sherry and loafing around garden centres.



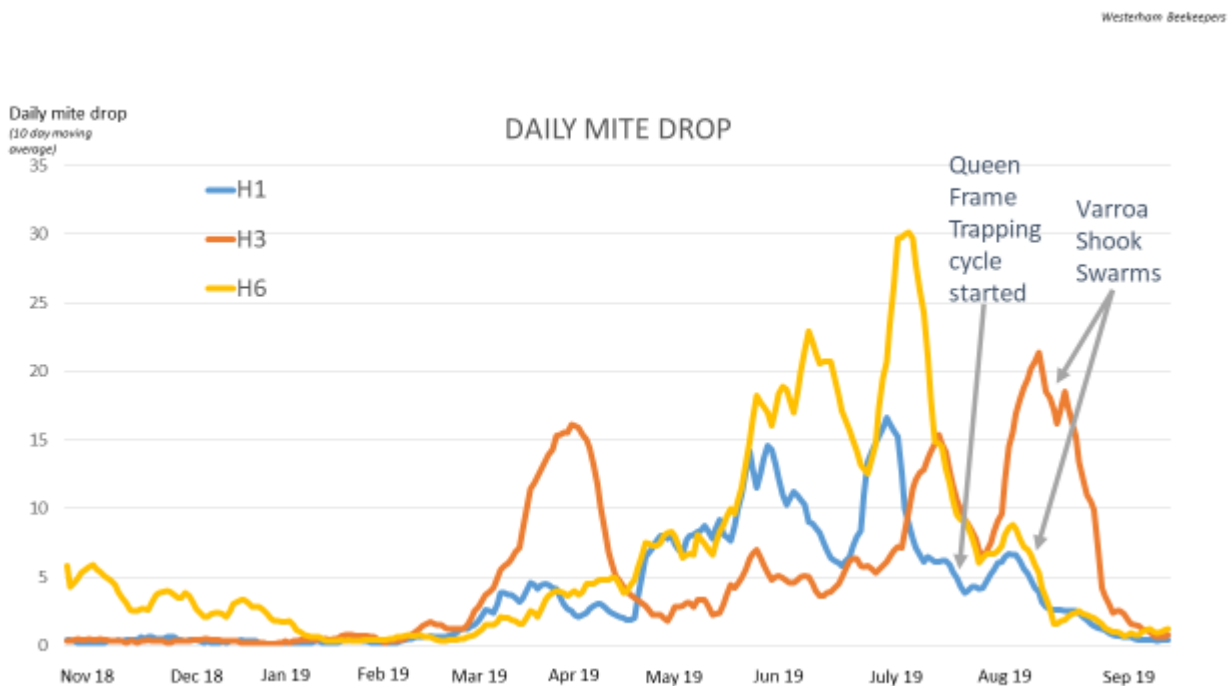
| Contents | |
|--------------------------------|-----|
| Preface | ix |
| 1 Introduction | 1 |
| 2 Bees in the Forest Hill | 17 |
| 3 Learning the Wild | 37 |
| 4 Are Honey Bees Domesticated? | 70 |
| 5 The Nest | 90 |
| 6 Annual Cycle | 147 |
| 7 Colony Reproduction | 153 |
| 8 Food Collection | 187 |
| 9 Temperature Control | 210 |
| 10 Colony Defense | 241 |
| 11 Domestic Beekeeping | 277 |
| Notes | 292 |
| References | 317 |
| Index | 341 |

Natural beekeeping update

Interest in the Westerham Beekeepers' project to find varroa tolerant bees and reduce chemical miticide treatments has grown, with colonies involved doubling from the 28 in the first year. A presentation was made to Epsom Beekeepers in the autumn, with further outings planned for Reigate, Orpington, New Forest and Sidcup over the winter & spring.

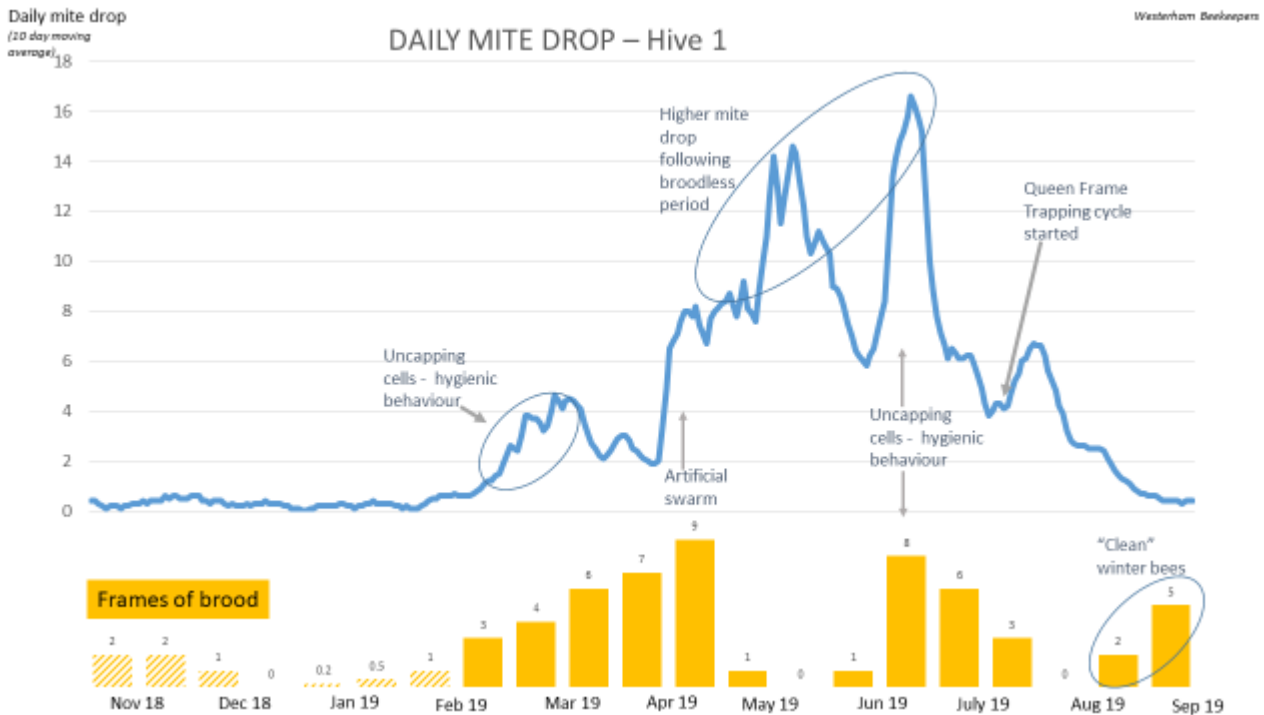
Wider interest was stimulated by exposure at the National Honey Show, where Dr Ralph Buechler, the keynote speaker (*and our informal mentor*), used a couple of our slides with “Westerham Beekeepers” in the title. These will be immortalised when the “You Tube” of the presentations are made available, so we had better shape up!

The first slide shows how effective Queen Frame Traps and Varroa Shook Swarms are at reducing mites. And, the counts stay low through the winter, with no need for prophylactic oxalic treatment in mid-winter.



The low mite drops in the winter of 2018/19 reflect Queen Frame Trapping and Varroa Shook Swarms in the July-August period of 2018.

The second slide (below) interprets the blue-lined Hive 1 data (from above), showing the brood growth through the year, the significant benefit of a brood-break post an artificial swarm (where mites have nowhere to hide or breed), and also observation of hygienic behaviour when brood was expanding (especially uncapping).



Brood breaks

These act as a natural defence mechanism of the honeybee, interrupting the cycle of all brood diseases. Between 2 & 4 brood-breaks would naturally occur every season (*if we let them*):-

1. Healthy feral colonies, in a fixed-capacity brood nest, are likely to swarm every year and which produces a natural brood-break. We can mimic these by artificial swarming or splits
2. Winter brood-break in December
3. During dearths; the queen stops laying as the bees regulate the brood to match the incoming forage
4. Nectar clogging: in a strong nectar flow, fresh nectar is dumped anywhere by the receiver bees including in the brood area.

+++++

I'd better wrap up there. Wishing all of our Westerham Beekeepers (and their bees) a very happy Christmas period and peaceful winter. Keep warm!!

Steve Riley 🚒

Education Officer

Westerham Beekeepers