

**The Healthy 'BEES' (Bee Education in Scotland) Final Report
2017 to 2020
Moray Beekeepers' Association**

1. PROJECT TITLE/APPLICANT

1.1 The Healthy 'BEES' (Bee Education in Scotland) Project

1.2 Moray Beekeepers Association (MBA) is a Scottish registered charity and exists to:

- a) advance education by providing training in the practice of beekeeping and production and distribution of educational information in the practice of beekeeping
- b) help conserve the natural environment by promoting the importance of bees in the environment, and
- c) conserve the future of the honeybee in Moray and Scotland.

1.3 MBA applied for funding for the project and appointed a project manager to oversee it. Reports have been submitted to the funders with each claim and this is now the final report.

2. EXECUTIVE SUMMARY

2.1 Funding of £52,750, 75% of the total project cost of £70, 320 was awarded as part of KTIF 'knowledge transfer', for the development of three new courses with 5 courses being re-written to address the project and beekeeping in Scotland.

2.2 Tony Harris, the Training Team Leader for MBA wrote the courses, ran them with another tutor and also managed the project.

2.3 The target of running 8 courses per year, over a three-year period, in various locations across Scotland was met. 24 courses were held across 13 different locations in Scotland ranging from Caithness in the north to Dalkeith in the south and West Kilbride. 277 students benefitted from the courses, a slight reduction from the target of 288 that was a result of several cancellations in 2020 due to Covid 19.

2.4 100% of students attending the courses, who completed a feedback form, stated that the standard of lecturing was either good or very good and 100% of them also stated that they had reached their objectives in attending the course.

2.5 75% of beekeepers passing the Scottish Beekeepers' Association more senior assessments and examinations have attended 1 or more Healthy 'BEE' (HB) courses as have 14 out of the 14 new recipients of the SBA Trainers Certificate in 2018 and 2019.

2.6 The Bee Farmers Association (BFA) have seen 4 new members during the project, an increase of 11% and 10 further HB students have started a bee related business.

2.7 The project has been a huge success with demand for each course being high, showing that there is an appetite for beekeeper training in Scotland.

3. PROJECT DESCRIPTION

3.1 The Healthy 'BEES' (Bee Education in Scotland) Project was a 3 year training programme of 24 intermediate and advanced beekeeping courses across Scotland with an overall aim to improve honey bee husbandry, beekeeping skills and honey bee health which will secure a sustainable and healthy population of Scottish honey bees.

3.2 Under the umbrella of Moray Beekeepers' Association the project was run and managed by Tony Harris NDB who reported quarterly to MBA trustees and more regularly to the funder, SRDP, KTIF.

3.3 Tony led the project, developed the courses working closely with the Scottish Beekeepers Association and the Bee Farmers Association and delivered them with Ann Chilcott in targeted locations in Scotland.

4. FINANCE

4.1 Total project costs were £70,320 and KTIF contributed 75% of the eligible costs which came to £52,740. Student contributions of £17,580 and £300 of benefit in kind made up the remaining 25%.

4.2 So, Financial support awarded was £52,750 but the total project spend was £50,276.83.

4.3 The underspend of £2,473.17 is due to the fact that several of the courses were held in Moray which meant that there was no requirement for lecturer's hotel and subsistence fees. Also, due to Covid 19 in 2020 several of the courses were not full.

5. PROJECT AIMS/OBJECTIVES

5.1 The aim of the Healthy 'BEES' (Bee Education in Scotland) Project was to improve honey bee husbandry, beekeeping skills and honey bee health which will secure a sustainable and healthy population of Scottish honey bees.

5.2 The Objectives were:

To help make Scotland more pollinator friendly, halting and reversing the decline in honey bees and native pollinators

To improve the level of knowledge and practical skills amongst Scottish Beekeepers

To provide mentors with the skills and confidence to cascade the courses to beekeepers in their locality

To raise awareness of the pests and diseases affecting honey bees and the management techniques that will help minimise the threats

To provide beekeepers with the knowledge and skills to become professional bee farmers and to run their own business

5.3 At the conclusion of the project c288 participants will be highly skilled beekeepers or bee farmers and will be teaching advanced beekeeping to new and improving beekeepers in their areas. The result will be that Scotland will indeed be more pollinators friendly and the future of honey bees in Scotland will be secured with a healthy and vibrant, managed population of honey bees.

5.4 Targets

Course research and writing to be completed by 11th February 2018

8 courses (96 students) to be delivered between February and November 2018

8 courses (96 students) to be delivered between January and December 2019

8 courses (96 students) to be delivered between January and November 2020

5.5 Student feedback to be collated formally for each course and a report compiled at the end of each period (Oct 2018, and Oct 2019 and a final end of project report in 2020)

5.6 Measures of success will be based on student's feedback forms and feedback from the SBA and BFA regarding satisfaction levels of students against their desired learning outcomes.

5.7 A measure of success will be the number of beekeepers taking part in the SBA assessment and examination system which should increase.

5.8 Also, the number of SBA Teaching certificates awarded should increase.

5.9 RESULTS. 24 courses were held across 13 different locations in Scotland ranging from Caithness in the north to Dalkeith in the south and Kilbride in the west. 277 students benefitted from the courses, a slight reduction from the target of 288 but that was a result of several cancellations in 2020 due to Covid 19.

5.10 Student feedback forms were handed out at the conclusion of each course and 100 % of students completing the forms stated that the standard of lecturing was either good or very good. 100% of students also stated that they had achieved their objectives in attending the course.

5.11 Following is a small sample of comments made by students on the feedback forms.

'Excellent course and well presented by extremely knowledgeable tutors. Very supportive environment conducive to learning.'

'Good course, enjoyed the practical elements.'

'Another wonderful course. Learned loads.'

'Very intense and covered a huge amount in a short time but very well structured and carried out.'

'Thanks, done all the courses now. Great value.'

6. PROJECT OUTCOMES

6.1 Outcomes, by end of 2020

- it can be demonstrated that Scotland's managed honey bees are thriving
- the Healthy 'BEES' (Bee Education in Scotland) project will be embedded in beekeeper training in Scotland and as part of the SBA education system
- more advanced beekeepers will be evident in Scotland (information from SBA and their examination system)
- there will be a network of beekeeper trainers in Scotland teaching best practice and an increase in the number of courses being run at local level
- there will be an increase in local bee based industries (information from BFA)

6.2 The Healthy BEES Project has become an integral part of beekeeper training in Scotland and is strongly endorsed by the Scottish Beekeepers Association (SBA).

6.3 Students attending the Healthy 'BEES' (HB) Project courses have been prominent in the SBA examination and assessment system.

6.4 In 2018 the following numbers of HB students achieved success in SBA examinations and assessments.

Intermediate Practical Certificate passes. 2 out of 6 were HB students

Apiarian Assessment. 3 out of 3 were HB students

Advanced Module Certificate. 2 out of 3 were HB students

Expert Beekeeping Certificate. 3 out of 3 were HB students

6.5 Similarly, in 2019.

Intermediate Practical Certificate passes. 1 out of 3 were HB students

Apiarian Assessment passes. 1 out of 1 were HB students

Advanced Module Certificate passes. 3 out of 5 were HB students

Expert Beekeeping Certificate passes. 1 out of 1 were HB students

6.6 One of the project objectives was that by the end of 2020 there would be a network of beekeeper trainers in Scotland teaching best practice and an increase in the number of courses being run at local level. Unfortunately, Covid 19 restricted the number of course that were able to be run locally in 2020 but it is pleasing to report that in 2018 and 2019 out of the 14 recipients of the SBA Trainers Certificate, 14 of these were HB students. This is an increase in the numbers of these certificates being awarded.

Additionally the SBA have introduced a new training role, that of Module Training Mentor and all 8 of the new mentors have benefitted from the HB courses..

6.7 A further outcome was to see an increase in local bee based industries and 3 courses entitled, 'Making the Move into Bee Farming' were run to encourage this. The Bee Farmers Association (BFA) have had 4 new members during the project life and there are another 10 beekeepers who although not wanting to join the BFA have started small bee based business, having attended HB courses.

7. LESSONS LEARNED

7.1 These courses were extremely popular and once started they advertised themselves via word of mouth and recommendations. Most of them were oversubscribed.

7.2 One small lesson learned was not to rely on local association members to hire a venue as some of them were not suitable. We learned from this and began vetting venues ourselves.

7.3 Covid 19 restrictions were a great challenge in 2020 but we were able to complete the courses by using Covid secure premises and following official advice regarding mitigations etc.

8. COMMUNICATION & ENGAGEMENT

8.1 The Healthy 'BEES' Project courses were extensively advertised throughout Scotland via the Scottish Beekeepers Association monthly magazine and website.

8.2 The Moray Beekeepers Association Facebook page was also used to engage with people and it currently has 1015 likes and 1158 followers.

8.3 The project was covered in national and international beekeeping publications (see the attached) and this helped to raise the profile of beekeeping education in Scotland as well as a recognition and appreciation of the Scottish Government and the E.U.'s support with funding the project.

9. KEY FINDINGS & RECOMMENDATIONS

9.1 The courses were extremely popular and the number of students could easily have been doubled.

9.2 Beekeeping husbandry skills have been improved and more beekeepers, having attended the courses, are achieving qualifications and taking up senior positions in the SBA education system.

10. CONCLUSION

10.1 There remains a need and a demand for this type of beekeeper training in Scotland and MBA have received many requests to continue the courses into 2021 and beyond.

10.2 This will obviously depend on funding opportunities and efforts will be made to accommodate the requests and meet the demand

11. ANNEXES

11.1 Articles appearing in beekeeping publications

Tony Harris NDB, Project Manager
30 November, 2020

The Healthy 'BEES' (Bee Education in Scotland) Project

A subsidised programme of beekeeping courses in Scotland has just completed its first year anniversary with glowing reports for tutors, Tony Harris, NDB, and Ann Chilcott.

Targeted at improver level beekeepers, one of the project aims, 'to improve honey bee husbandry and beekeeping' is already being met. Scottish Beekeepers Association (SBA) President and Education Officer, Alan Riach, wrote recently, *'Examiners for the SBA Practicals are reporting improved standards of beekeeping from candidates that have attended the Moray Healthy BEES, 2 day workshops,'* and added, *'it is good to see that Tony Harris and Ann Chilcott's hard work is paying off.'* (*1)



Lecturer Ann Chilcott with enthusiastic students

Heavily subsidised by the Scottish Rural Development Programme, Knowledge Transfer and Innovation Fund, supported by the Scottish Beekeepers Association and the Bee Farmers Association, the courses offer excellent value for money at a cost of just £60 and there has been healthy competition for places.

SBA member, Margaret Forrest, wrote in the Scottish Beekeeper magazine, *'I was delighted to attend the first of these courses, Integrated Pest Management and Adult Bee Diseases. Our tutors for the weekend were Tony Harris and Ann Chilcott, both of whom are Scottish Expert Beemasters, with a wealth of experience and knowledge in all things to do with honey bees. The timing of the course was perfect for me (and I guess for several others) as it took place just four weeks before the SBA Module 3 exam on honey bee diseases.'* Margaret finished by stating, *'this is an excellent course which I feel has enhanced my knowledge of the topic and makes me feel more confident in looking after the health of my bees'* (*2).



Microscopy work on the Healthy 'BEES' IPM/Adult Bee Diseases course

This is music to the ears of Andy Watson, Chair of Moray Beekeepers' Association, the charity that secured the funding package, as he says, *'The main aim of this project is to improve honey bee health which will secure a sustainable and healthy population of Scottish honey bees and that starts with individual beekeepers.'*

A mixture of classroom and practical subjects, covering honey bee behaviour, swarm control, handling skills and manipulations, queen rearing and selection as well as a course entitled, 'making the move from hobbyist to bee farmer', 96 students have benefitted from the training and student feedback has been excellent.



Healthy 'BEES' Colony Manipulations Course students with Tony in pink

Project Manager, Tony Harris is delighted with year 1 of this 3 year project stating, *'this is believed to be the first time a co-ordinated programme of intermediate beekeeping courses has been available in Scotland and the support from the beekeeping community has been fantastic.'*

Tony was recently presented with the Dr John Anderson Memorial Award by the SBA, 'in recognition of special work or service for the furtherance of beekeeping in Scotland and beyond', seen as a recognition of the team behind the Healthy 'BEES' courses.



Tony (on left) being presented with the Dr John Anderson Memorial Award by SBA President, Alan Riach

The object of the Award is to stimulate education in beekeeping throughout Scotland, to further the work of research in practical beekeeping and to perpetuate the memory of the late Dr John Anderson. It is awarded to members of the SBA and previous noteworthy recipients include, 1946, W. W. Smith, Innerleithen, 1965 A. S. C. Deans NDB, 1990, B. Mobus NDB, both Aberdeen, along with many more local beekeepers who have contributed to beekeeping education in Scotland.

For further information on these courses, individual beekeepers and beekeeping associations are asked to contact Tony Harris via e mail: tony@moraybeekeepers.co.uk or visit the website www.moraybeekeepers.co.uk where you can book your place.

*1 Scottish Beekeeper Magazine, October, 2018

*2 Scottish Beekeeper Magazine, May, 2018

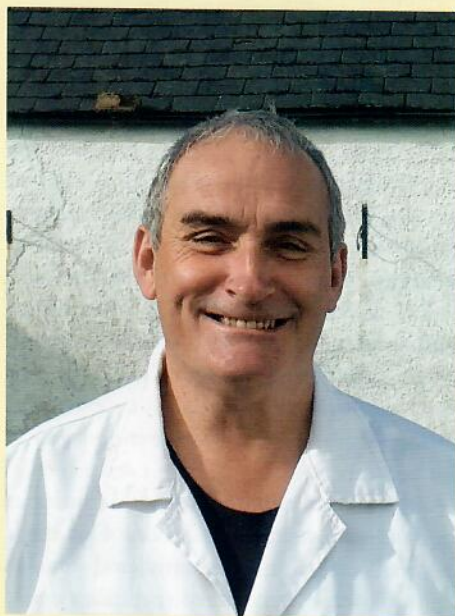
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"The funding is being made available through the SRDP Knowledge Transfer and Innovation Fund, which is jointly funded by the Scottish Government and the European Union"



SCOTLAND

Ann Chilcott



Tony Harris has worked hard to secure training for beekeepers in Scotland in a project that is open to all applicants as he explains below.

Training Beekeepers

The Healthy 'BEES' (Bee Education in Scotland) Project

Moray Beekeepers Association (MBA) are delighted to announce that we have received funding from the SRDP Knowledge Transfer and Innovation Fund, which is jointly funded by the Scottish Government and the European Union to run a programme of beekeeper training courses in Scotland.

For too long there has been an injustice in the availability of intermediate and advanced beekeeping courses in Scotland with beekeepers having to travel to England and pay upwards of £200 for similar beekeeping courses that are heavily subsidised by DEFRA under the Healthy Bees Plan for England and Wales residents.

Beginner training takes place, quite rightly, in local associations but up to now there has been no co-ordinated programme of training available for improvers or those wishing to move up to the more advanced levels.

MBA is a Scottish charity and this is a not-for-profit project with a total cost of £70,320. The grant rate is for 75% of the total, £52,740 with the remaining 25%, £17,580 being met by student contributions of £60 per 2 day course and some volunteer time. The Healthy 'BEES' (Bee Education in Scotland) Project is a 3 year training programme of 24 intermediate and advanced beekeeping courses to be held in various locations in Scotland, with an overall aim to improve honey bee husbandry, beekeeping skills and honey bee health which will secure

a sustainable and healthy population of Scottish honey bees. in the U.K).

The objectives of the Healthy BEES

Project are:

- ▶ To help make Scotland more pollinator friendly, halting and reversing the decline in honey bees and native pollinators
- ▶ To improve the level of knowledge and practical skills amongst Scottish Beekeepers
- ▶ To provide mentors with the skills and confidence to cascade the courses to beekeepers in their locality
- ▶ To raise awareness of the pests and diseases affecting honey bees and the management techniques that will help minimise the threats
- ▶ To provide beekeepers with the knowledge and skills to become professional bee farmers and to run their own business.

The application was supported by the Scottish Beekeepers Association (SBA) and the Bee Farmers' Association. Under the umbrella of Moray Beekeepers Association the project will be run and managed by Tony Harris NDB who will report quarterly to MBA trustees and the funder, SRDP, KTIF. Tony will lead the project and will develop the courses working closely with the Scottish Beekeepers Association and the Bee Farmers Association and deliver them in targeted locations in Scotland.

The courses will comprise of small groups of 6 students to one tutor as this ratio has been shown to be more beneficial in learning situations than large groups. They will be both theoretical and practical and will address the SBA Education Syllabus as well as promoting bee farming as a career in Scotland. An important part of the project is that the courses will equip mentors and teachers to cascade the training to beekeepers in their locality, thus ensuring a bigger target audience is reached.

Course Titles have been agreed as follows:

- ▶ Integrated Pest Management for varroa, pests and adult bee diseases
- ▶ Honey Bees, plants and balanced nutrition (pollen)
- ▶ professional bee farmer
- ▶ Handling Skills
- ▶ Honey Bee Management – Best Practice
- ▶ Honey Bee Behaviour
- ▶ Swarm Control
- ▶ Queen Rearing and Nucleus Creation

The training will cost students £60 per 2 day course (this is £25 cheaper than similar advanced courses in England and is believed to be one of the best value courses available

What does this mean for individual beekeepers?

- ▶ Individual beekeepers will receive high quality 2 day courses, including refreshments for just £60
- ▶ ABA's will be able to apply for a selected course to be run in their locality
- ▶ The course content can be cascaded to your ABA members

What do we want ABA's to do?

- ▶ Promote the courses to your members
- ▶ Consider paying or subsidising members of your training team to attend
- ▶ Consider hosting a course, either classroom, apiary or both?

Project Timetable

The project start date is 1st December when course development begins and the plan is to start the courses in February 2018 and run 8 courses per year. They will be advertised in the New Year and will hopefully be available for booking via an online system to save on administration time.

Conclusion

This is believed to be the first time that a programme of intermediate and advanced beekeeping courses have been available to Scottish beekeepers in Scotland and at such a low cost. I am sure the project will be scrutinised closely by the Scottish Government and other bodies but if successful could lead to more of the same.

All of us in the Scotland beekeeping family need to make the project a success and I firmly believe if we do, we will make a positive difference to honey bee husbandry, beekeeping skills and honey bee health in Scotland.

For further information or to express an interest, individual beekeepers (you do not need to be a member of the SBA) and beekeeping associations (you do not need to be affiliated to the SBA) are asked to contact Tony Harris via e mail: tony@moraybeekeepers.co.uk

Red-Laird Director of Beegirl Organisation.

As 2017 draws to an end in Scotland the beekeeping stories across the country vary greatly as usual with some folks reporting bumper honey harvests, others average, and those with none blaming the weather. Searching for inspiration I interviewed Sarah Red-Laird during her visit to Scotland in the autumn. Sarah fell in love with Scotland in 2016 when she came across to talk about her

Integrated Pest Management and Adult Bee Diseases

A Healthy 'BEES' Project Course Scotlandwell, 24th and 25th February 2018

The availability of training for beekeepers in Scotland for the next three years has recently been enhanced with the introduction of the Healthy 'BEES' (Bee Education in Scotland) Project Courses. Heavily subsidised by the Scottish Rural Development Programme, Knowledge Transfer and Innovation Fund, these courses are aimed at improver and advanced beekeepers and are being held in various locations in Scotland. The overall aim of the project is "to improve honey bee husbandry, beekeeping skills and honey bee health which will secure a sustainable and healthy population of Scottish honey bees".

I was delighted to attend the first of these courses, on Integrated Pest Management and Adult Bee Diseases. Our tutors for the weekend were Tony Harris and Ann Chilcott, both of whom are Scottish Expert Beemasters with a wealth of experience and knowledge in all things to do with honey bees. The timing of this course was perfect for me (and I guess for several others) as it took place just four weeks before the SBA Module 3 exam (on honey bee diseases!).

The course began with an examination of *Varroa destructor* and its lifecycle. There was good use made of photographic images of bee diseases and pests throughout the course, but even more impressive was the facility provided for each student to use microscopes to examine varroa and honey bee diseases in greater detail. On the morning of the first day each of us were given a few dead varroa to examine under a dissecting microscope with a magnification of x40 and asked to sketch what we saw, highlighting the main features of this mite. How different (and so much better) this is from simply reading about varroa and I know that the exercise of sketching or drawing encourages careful observation of the subject. It is very important for all beekeepers to be able to recognise varroa and take appropriate action.

We were introduced to several biotechnical control methods for varroa, including the open mesh floor, drone brood removal, queen comb trapping and the artificial swarm. I asked about the 'Bee Gym'™ grooming device and was directed to a research article which concluded that there is no evidence of its efficacy as a management strategy for varroa(!). The advantages of biochemical

methods of control are that they do not require the use of chemical varroacides, can be combined with summer management and can be inexpensive or free. However, there are some possible disadvantages, too: they can be time-consuming, some need a high level of beekeeping skill, they are generally not sufficient on their own and misuse can harm colonies.

The importance of using varroacides correctly was emphasised as well as the dangers of overusing the same products and the development of resistance, e.g. some varroa mites are resistant to Apistan and Bayvarol. We learned about the Beltsville Test used to detect varroa which are resistant to pyrethroid, the active ingredient in these varroacides.

A very useful group exercise on day one of the course was to develop an Integrated Pest Management (IPM) strategy with reference to varroa. This is one where it is desirable to keep chemical inputs to a minimum. Each group's strategy was slightly different, but here are the salient points:

- Using control at several points of the year makes it harder for the mite population to reach harmful levels

- Use of biotechnical management methods can reduce the need for varroacides
- Using two or more unrelated varroacides will delay development of mite resistance
- Control strategies can easily be altered to reflect changing infestation levels.

The main point of the group exercise was to encourage each of us to have a plan to control varroa. We were reminded that not treating for varroa is not the same as ignoring varroa infestations!

In the second part of the course we learned about the lifecycle of another mite, *Acarapis woodi* and how this germinates in the first thoracic tracheae (breathing tubes) and can shorten the life of the honey bee. In my studies for Module 3, I had read about this mite and how acarine disease can be diagnosed through dissection and using a microscope. It was marvellous to receive guidance and have hands on practice of this type of dissection during the course. The bees which I dissected showed no sign of the disease, but now I know how to carry out the procedure (and I'm more likely to remember this for the exam). We were also given the opportunity to diagnose *Nosema apis*. This is another adult bee disease which can only be confirmed using a microscope.

The second day began with an introduction to bee anatomy and in particular the digestive and respiratory systems, both of which can be seriously affected by bee diseases. We were shown how to carry out a dorsal dissection of a honey bee by first embedding it in a shallow container of beeswax and removing the back of the bee. With care, we were then able to lift out and examine the ventriculus (midgut) attached to the honey sac at one end and the malpighian tubules and small intestine at the other. We learned about the protozoa, *Malpighamoeba mellifica* (amoeba) which germinates in the ventriculus and then





moves into the Malpighian tubules where it attacks the lining cells of the tubule. Being able to see the internal organs of the honey bee through the lens made learning about bee diseases so fascinating and relevant.

The last section of the course focussed on the small hive beetle (*Aethina tumida*) and the Asian hornet (*Vespa velutina*). The importance of being able to recognise these pests and distinguish them from similar pests was emphasised. It was very useful hearing one of the participants who had recently returned from a visit to Texas, describe her impression of the small hive beetle which she had seen there: "very small and fast moving", so not much time to look out for those clubbed antennae we have been warned about. However, we can take time to look out for the larvae of the SHB and make sure we know the difference between these and the larvae of the wax moth which was the last topic of the day.

Finally, Tony asked us to take a quiz (of 32 questions!). This was a great way to end the course: it kept us on our toes right to the finish and helped us review a huge amount of factual information in a short time. As

with previous courses run by Tony and Ann which I've attended, we were sent all the PowerPoint slides just after the event. These slides have been so helpful with my revision and I know I'll return to them again as I put the finishing touches to my IPM plan for this year.

IPM and Adult Bee Diseases is an excellent course which I feel has enhanced my knowledge of the topic and makes me feel more confident in looking after the health of my bees. I very much hope it will be repeated next year as part of the Healthy 'BEES' Project and I would definitely recommend this to everyone with an interest in the health of honey bees. This course covered so much essential information which I'm sure every bee would want their beekeeper to know.

Reference

Patrick, Jonathan G. et al. "The effect of the 'Bee Gym'™ grooming device on *Varroa destructor* mite fall from honey bee (*Apis mellifera*) colonies", *Journal of Apicultural Research*, 2017, 56(1): <http://www.tandfonline.com/doi/full/10.1080/00218839.2016.1260388?scroll=top&needAccess=true>

The Plastic Munchers?

How many of us have felt dismay on uncovering a super or a brood box after winter storage to discover a stringy mess – the tell tale signs of the presence of *Galleria Mellonella* and her brood?

A few years ago, I returned a solid floor, well scorched and cleaned underneath a varroa mesh floor. On examination a while later, the bees were busy propolis-ing the mesh floor to separate themselves from a *Galleria Melonella* family that had merrily taken up residence on the solid wooden floor below the hive, the darkness and moisture being ideal for them.

My first instinct was to reach for the Certan bottle – B401 – a concentrated solution of *Bacillus thuringiensis*, subspecies *aizawai*, a micro-organism, harmless to man and honeybee alike, but a killer of the wax moth.

Certan is a treatment that should be done before winter storage.

Despite reassurances that it has no effect on the honey or comb, deep seated training leaves one feeling uncertain about spraying super frames with a solution of Certan.

In 2015, a developmental biologist at the University of Cantabria in Spain, Federica

Bertocchini, cleaned out her backyard bee hives. She removed some wax worms (*Galleria mellonella*) living in the hive and placed them in an old plastic bag. When she checked the bag an hour later, she discovered small holes in the part of the bag with the larvae. Although Bertocchini wasn't an entomologist, she guessed what was happening.

Like plastic, wax is a polymer, which consists of a long string of carbon atoms held together, with other atoms branching off the sides of the chain. Both wax and the polyethylene in Bertocchini's plastic bag have a similar carbon backbone. Bertocchini teamed up with fellow scientists, Paolo Bombelli and Christopher Howe, to figure out how the wax worms were consuming plastic.

When they placed the worms on polyethylene plastic, they found that each worm created an average of:

- 2.2 holes per hour.
- Overnight, 100 wax worms degraded 92 milligrams of a plastic shopping bag.
- These same 100 worms would take nearly a month to completely break down a 5.5 gram plastic bag.



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I checked the cells (I'd never seen these queen cells fully sealed as I didn't want to interfere – nothing). However there was a checkerboard of multicoloured pollen that was a work of art and the girls had done a great job filling honey stores. I carried out a futile search, with no evidence of a queen and my heart sank. It wasn't like the colony was full of workers and the bees started to roar (another sign of a queenless colony I expect). There were just empty rows of cells and a drizzle of nectar around the edges where the queen should have been laying but I could see right through the frame and there were only three scattered drone cells, a product of my move of eggs across on the 1st May. I calculated they must be due to emerge today or tomorrow. Meanwhile the original colony was thriving and prolific; so much so they'd built into the now empty sugar syrup feeder and as I removed it to replace the feeder with a solid cover board, I unwittingly uncapped sealed brood underneath. Oh! At least there was

no varroa in the cells. It felt that I'd failed and made rookie mistakes. I relocated the Apivar strip as directed within the five frames. Die! You horrible beasts!

I referred to my flow chart and decided to leave it a further week after calculating that the foragers would be around until mid-June. I hoped that the continued vigour of the new colony signalled that it was queenright and I was too early with my inspection and over analyzing it all I needed more patience.

31st May

As I separated the frames I planned to take a donor frame out again if all had failed, if it was available. The first few frames carried less stores and as I checked the first possible brood frame, there was nothing but nectar and honey. I spotted a bee coming in, loaded with yellow pollen. I peered at the final frame, laden with bees. As I gazed and focused in, there they were. I grinned from ear to ear as I observed juicy, white larvae, at around 6 days old. I stopped myself from dislodging the queen and annoying the bees by taking a dance around the garden.

These little beings had dealt with the crisis of being separated from their queen, survived through the stress of cultivating a new queen, originally destined to be a worker and transformed her with a bit of extra royal jelly. The marvel of the realization of that change. The extension of life to five years rather than five weeks (how awe inspiring) and then safely navigating her way back home after her mating flight. She chose to come back home to her siblings, remain and start a family. How honoured am I and how marvellous is nature? I adore them. They did the work of course. I hope I did my best for them. Yes, I made mistakes and I've learnt more about their behaviour and my beekeeping. I hope, is better for it. I replayed the image of the little larvae I'd witnessed all evening in my mind. Long may she reign! 🐝

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The Healthy BEES Queen Rearing Course

The 'Healthy BEES (Bee Education in Scotland)' 'Queen Rearing & Nucleus Creation' weekend course took place at the Moray Beekeepers' apiary near Elgin at the end of May. It was delivered by Tony Harris and Ann Chilcott and supported in the background by members of the MBA. There were twelve participants from various parts of Scotland, typically perhaps having 3–5 years' experience and running three or four colonies. Few had tried queen rearing before.

The two day course comprised several practical sessions interspersed with talks. Surprisingly for the Costa del Moray the weather was rather overcast on the Saturday so the programme order was changed accordingly. The method taught was either the Miller method or grafting to generate queen cells, followed by the NBU queenright 'cell raiser' colony method' with subsequent transfer of queen cells into full-sized or mini-nucs.

The first practical session was centred around the basic skills of recognition of the various forms of queen cells and their state of development: emergency, swarm and supersedure, sealed, unsealed, empty, emerged. In the second session the critical skill of 'grafting' was practised; transferring minute, one day old larvae from the comb of the selected queen/colony into plastic cell cups which the bees would develop into queen cells. Finally we practised handling queens – using drones as their stunt doubles – for marking and insertion into travelling or introduction cages.

The weather on Sunday was perfect for the main event. Each participant made up frames for an Apidea mini-nuc, after which the rest of the afternoon was spent amongst the hives. Stocking the Apideas with bees was demonstrated, and then, after taking ripe queen cells from grafts that had been started a couple of weeks earlier, additional queen cells were taken from the other hives





to finally be able to stock around 20 Apideas and nucs. The nucs were created using the 'Cook Circle' method – a well-known bit of beekeeping theatre – where frames from a single large colony surrounded by a ring of nucs are split amongst the nucs and the central hive then removed. There were bees everywhere of course, but they quickly found their new homes.

The challenge of queen rearing is clearly that there are many points in the multi-step process where something can go wrong; the grafting, the preparation and strength

of the 'cell raiser' colony, the transfer and emergence of the queen cells, and then mating and successful colony expansion thereafter. The whole process takes several weeks on a pretty rigid timetable and attention to detail is essential.

I have pretty unsuccessfully tried queen rearing using grafting and cupkits a couple of times before. The course, (and an impending Module 7 entry!), provided the inspiration to try again and the practice and insights from the course will certainly help. ☹

Letter

Dear Editor,

Re., Clare Darlston's pollen dilemma, highlighted in the June Letters Page: There are a number of solutions to this problem, which is caused by the bees walking on the wire mesh of the Varroa floor: Watch a dog trying to navigate a cattle grid!! The ideal underfloor insert for the Open Mesh Floor is a stiff plastic sheet of the type Estate Agents use to advertise 'Houses for Sale', cut to size. Monitoring 'Varroa Drop' year round is 'good management', however Clare has found the 'downside' of

this practice. Rather than 'lift and lay' the Open Mesh floor: The next best solution is to place the stiff plastic sheet on top of the mesh, wedging it in place so that the bees do not get stuck under it. Do this on a time scale, of perhaps, Friday night to Sunday afternoon; with the sheet under the mesh and Monday to Friday afternoon with sheet on the floor and this will solve the problem to a greater or lesser degree! Works for me!!

Eric McArthur ☹

Liability Insurance

Limit of Indemnity Increased to £10.0m

The liability policy for members of the Scottish Beekeepers Association renews on 31st May and I am pleased to report that the policy has been renewed at advantageous terms. The Limit of Indemnity under this policy is £5.0m but the Trustees took the view that they would like to increase the Limit of Indemnity to £10.0m. Unfortunately the liability insurers were unable to increase the Limit of Indemnity to £10.0m so cover has been placed with

another insurer for £5.0m over £5.0m making a total cover of £10.0m.

On the SBA website I have posted two "Letters of Comfort" from both insurers and members can download and print either or both as required.

Our liability cover must be the best of any beekeeping association and is a very valuable benefit for members of the Scottish Beekeepers Association.

Alan Mackie, Insurance Advisor ☹

For information on all SBA products and books for sale please go to the website where they may be viewed and ordered online.

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Useful Websites:

Beekeeping Organisations

Scottish Beekeepers' Association: <https://www.scottishbeekeepers.org.uk> our main website

Archive Scottish Beekeepers: <https://archive.scottishbeekeepers.org.uk> archive of all our magazines more than 2 years old

Scottish Beekeepers' Interactive Forum: http://www.sbai.org.uk/sbai_forum/forum.php place to ask for and give advice for Scottish beekeeping matters

Beebase: <http://www.nationalbeeunit.com> everything in relation to bee Health in the UK

British Bee Farmers: <http://beefarmers.co.uk> website for professional beekeepers

British Beekeepers Association: <https://www.bbka.org.uk> the English beekeepers website

Dave Cushman Website: <http://www.dave-cushman.net> general searchable encyclopaedic information

Federation of Irish Beekeepers: <https://irishbeekeeping.ie> Republic of Ireland Beekeepers website

Institute of Northern Ireland Beekeepers: <http://www.inibeekeepers.com>

IBRA International Bee Research Association: <http://www.ibrabee.org.uk> established in 1949 by Eva Crane

Ulster Beekeepers Association: <https://www.ubka.org>

Welsh Beekeepers Association: <http://www.wbka.com> the Welsh beekeepers' website

Magazine Websites

American Bee Journal: <https://americanbeejournal.com> one of two leading US beekeeping magazines

Bee Culture: <http://www.bee-culture.com> the other leading US beekeeping magazine

Bee-craft: <http://www.bee-craft.com> a leading British publication

Beekeepers Quarterly: <http://www.northernbeebooks.co.uk/newbooks/the-beekeepers-quarterly/> a British beekeepers quarterly magazine

There are many Facebook groups, including the SBA official one. Search for your particular interest including modular exams, beginners and queen rearing.

Printed by Pensord Press Ltd., Blackwood, NP12 2YA

New Improved Small Scale Wax Extractor

I have made a few improvements to the previously published wax extractor.

With two stainless-steel buckets, a stainless steel colander to hold the pillow protector that contains the wax and a frying pan splatter guard that the colander stands on, that fits perfectly between the buckets.

A pipe connection to the top bucket provides the steam, within minutes beautiful clean wax filters through to the bucket below and floats on the water already in the bottom bucket. ☒



Intermediate Handling

A Healthy 'BEES' Project Course Newcastle Bee Academy, 9th and 10th June 2018

On World Bee Day this year, the Newcastle Bee Academy was launched and less than a month later, it was the perfect host for the Intermediate Handling course of the Healthy 'BEES' Project. It's a few years since I last visited the apiary at Newcastle and so after reading about all the hard work and fund-raising of the Newcastle Beekeepers, I was looking forward to seeing the newly refurbished accommodation. The course and the new accommodation were an excellent match.

The Healthy 'BEES' Intermediate Handling course was facilitated by Tony Harris NDB and Ann Chilcott, both of whom are Scottish Expert Beemasters. It was aimed at "improver" beekeepers with a year or more of experience and our group comprised several Newcastle Beekeepers and a number of others from local associations with a wide range of beekeeping experience. We were all there to improve our beekeeping techniques and hopefully become better beekeepers.

Hygiene in and around the apiary is now recognised as an important method of

infection control and this was the topic of our first session. The Ten Commandments of Apiary Hygiene are a really useful way to summarise all the points we discussed. Many of these are probably practised by conscientious beekeepers, but I expect a few ideas were new to many, e.g. having a bucket of soda solution to wash tools and hands (in disposable or washing up gloves) between inspecting colonies. Leather gloves are definitely out!

We were given useful tips on workspace management and arranging hives and equipment to help avoid accidents and injury. At the Bee Academy we had ideal facilities to work in the classroom and outside to practise lifting safely and manoeuvring brood and super boxes as if in a real inspection. The Academy apiary is a short walk from the classroom and this, too was a model of good practice in the arrangement of the hives and space for learners to practice new skills.

In the apiary we learned (or in most cases, I think, relearned) how to use hive tools and manipulate frames, ensuring bees are not crushed or stressed. Shaking bees is an important skill and those of us with National frames have a tendency to hold the frames by its long lugs and shake so that the frame swings out and the bees are thrown away from the hive. Now I know to grasp the frame by its side bars and not the lugs: a much more successful way of clearing a frame and ensuring the bees end up back with their colony. Multi brood box inspections were demonstrated by Ann and Tony with a 'dry' hive using extra crown boards to protect the bees in the separated boxes and improvised hive stands (roofs from other hives) for support. We learned why it's always better to inspect the bottom brood box first before checking upper boxes: returning foragers will gather there and so the sooner this box is checked



The hexagonal frames are of major benefactors of the Bee Academy



In the apiary

the easier the inspection, before the box becomes overcrowded.

On the second day of the course we learned a few tips about finding a shy queen. One suggestion is to arrange the frames in pairs with space between the pairs in the brood



Close up in the apiary

box. The queen is likely to be hiding in the dark space between the two frames of one of the pairs which can then be 'opened up' as in a book. Picking up, marking and clipping a queen is something I had read about, but hadn't practised. I knew I would be expected to do this in my Intermediate Practical exam next month, so it was very useful to be shown the correct way to pick up a bee (we practised on drones), clip its wing and mark it. Placing a queen in a queen cage can be a tricky operation, but we all managed to do this with a drone and then add a few 'attendants'. Replacing the queen is usually the recommended way to deal with a difficult colony. We learned about removing the colony from the flying bees first before doing this. We also learned about other, less desirable, ways of dealing with an aggressive colony (involving petrol).

Checking for disease is recommended at the time of the first spring inspection and again after the main nectar flow in late summer. In the apiary we were shown how to hold a frame at the correct angle to check for AFB and EFB diseases and then turn the frame over (right arm over left) to view the other side. We looked deep into each cell searching for chalkbrood and sacbrood.

Later in the day we gained hands on practice in creating a nucleus of bees, ensuring that frames with stores and brood were in the correct order before adding a new queen or queen cell. There are multiple uses of nuc boxes (especially polynucs). In my notes from the course, I've listed fourteen.

"There is no problem in beekeeping that can't be solved, by either putting something into, or, taking something out of a Nuc, and, Nucs rarely give problems."²

Back in the classroom, we were shown slides of the different types of queen cells and what to look out for during the swarming season (especially if we haven't

practised swarm control). There were also lots of useful tips on how to avoid swarming.

Our final discussion was on the topic of running a successful apiary training event and it seems to me that the Newbattle Beekeepers Association is a model of good practice in this area. In addition to attending a very informative and useful Healthy 'BEES' course I felt I had gained a better understanding of the creation of Scotland's first Bee Academy and an appreciation of the hard work and dedication of its members to further the education of beekeeping skills locally and in the wider community. Many thanks to Tony and Ann for running another excellent Healthy 'BEES' course and to all the Newbattle Beekeepers who volunteered on the day, ensuring we experienced first class training accommodation and the very best in beekeeping hospitality.

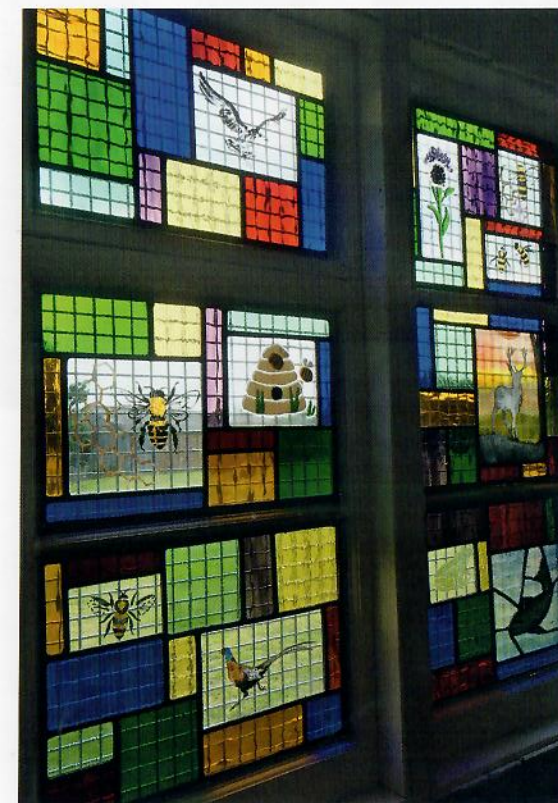
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1. Nelson, Helen, "Newbattle Bee Academy", *Scottish Beekeeper*, 2017, 94(10): 392-393. See also: <https://chuffed.org/project/our-bees-need-you>
2. Wedmore, E.B., *A manual of beekeeping*.



The beautiful new window

Editor: The window is a founders' window which was a reward for contributing a large sum of money to the Newbattle Beekeepers' fundraising

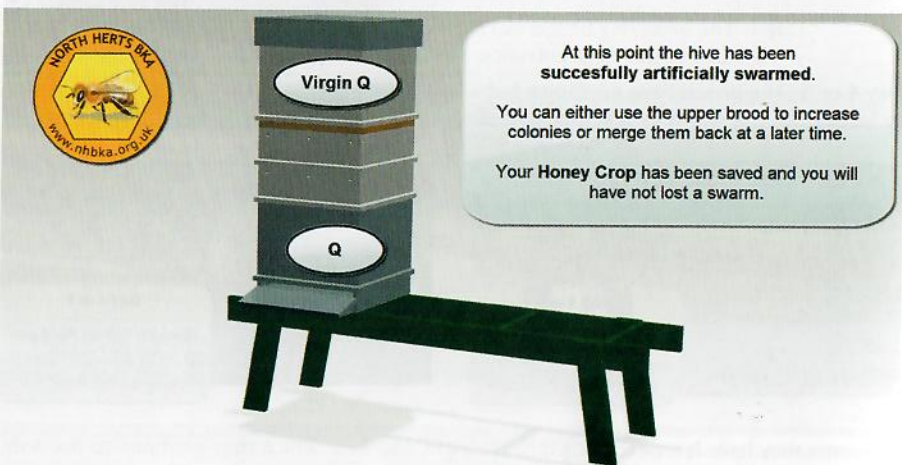
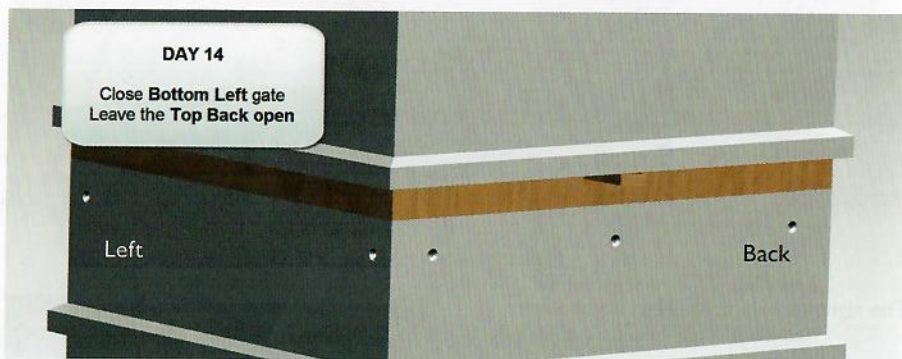


campaign. Annette and Malcolm Evans used this to create a memorial for their son Oliver who died aged just 31. Oliver was a gamekeeper hence the theme of the various panes.

The window itself has been framed by Michaela Huber, one of our new beginner beekeepers, who is a cabinet maker. The window was made by a local stain glass artist.



The bees are switched again and return to the lower left entrance, thinking it the upper left entrance. This further decreases the population of the upper box.



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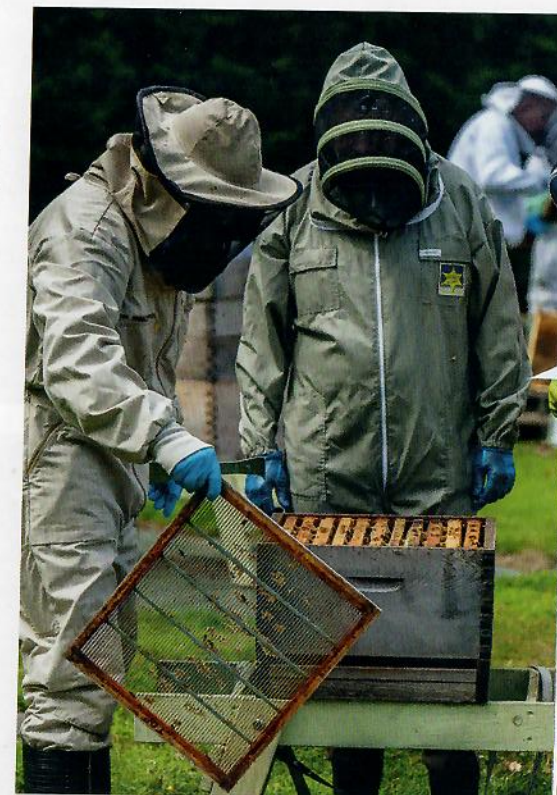
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Healthy BEES Course: Advanced Manipulations

Another weekend for beekeepers to improve their beekeeping skills. Many thanks for giving us access to the EMBA apiary, it was nice to work with well behaved bees. Thanks again to Tony and Ann for providing us with this opportunity to learn best practice. Jackie Elliott





Healthy BEES: Honey Bee Behaviour

**A Healthy 'BEES' Project Course
Pitcairngreen Village Hall,
29th and 30th September 2018**

On a glorious autumn weekend I attended an excellent course in the Healthy 'BEES' series run by Tony Harris, NDB and Ann Chilcott, both Scottish Expert Beemasters. In contrast to the previous courses, this one was wholly classroom based with a few group work activities to keep us on our toes. Honey bee behaviour is a topic which covers such a wide range of activity and colony development and this course helped us to gain a better understanding of the most important aspects of bee behaviour, with the goal of enabling us to become better beekeepers.

An understanding about the colony lifecycle is fundamental to understanding about honey bee behaviour. The colony

population is managed by the bees depending on the season and weather. After winter, spring flowers lead to a dramatic population rise from April onwards and we were shown a graph which illustrates clearly the critical period from March to May when there is usually a greater number of brood than workers in the colony. As well as ensuring the brood and queen are well fed the workers need to maintain the homeostasis of the colony which was the topic of our next lecture. In the context of honey bees, homeostasis means maintaining the nest temperature and humidity at relatively constant levels regardless of external conditions. We've probably all seen bees in their winter or cold weather cluster; this course explained why bees do this and how the cluster opens out or tightens depending on the ambient temperature. On very warm days this summer many beekeepers may have



seen bees fanning at the entrance to the hive, helping to create a through draft and ensuring the colony is well ventilated.

We learned how honey bees communicate with their nest mates through touch, smell, taste and the vibrations of dance language. We were shown several video clips of bees taking part in different dances which have a variety of uses (not simply the first in this list):

- To indicate a food source
- Encourage workers to activity
- Balance nectar collection and processing
- Initiate swarming
- Choose and travel to a new nest site

Tom Seeley talks about the "information centre" of the hive(1) and this is what Tony and Ann clearly demonstrated on this course. In addition to dance language, honey bees use sound to communicate with each other in the dark hive. Pheromones, too play an important role in behaviour and communication. For example, the Nasonov pheromone is used for marking and orientation. The lecture on pheromones and glands explored this in more detail.

The second part of the course covered some good revision on swarming and the focus this time was on the way the bees behaved (not just about the beekeeper's behaviour in controlling or trying to prevent swarms!). Both of our group exercises were related to swarming, firstly we had to arrange in the correct order a number of cards describing the different types of behaviour exhibited by bees who are preparing to swarm with a mated queen (the prime swarm). Secondly, we arranged cards about the behaviour of bees in a colony which is deciding to throw casts. I couldn't help feeling as we worked our way through these exercises that Tony and Ann were watching our behaviour and how we came to a consensus. We were all keen to come up with the right answer

(placing the cards in the correct order). Thankfully, our lives didn't depend on this, but for bees which decide to swarm and throw casts, there is much more at risk. We now know that about 80% of swarms moving into natural cavities do not survive their first winter. A critical time for swarming bees is when they are in their temporary cluster just after leaving the hive. The recommended reading for this part of the course was Tom Seeley's book, *Honeybee democracy*(2) and it was good to discuss the research in class and learn more about how honey bees democratically select their new nest site. If you have a bait hive in your apiary and you have watched scout bees investigate the hive, these are the bees which will return to the cluster and use the waggle dance to describe your bait hive to their nest mates. If only we could be sure they will return with a favourable impression of our offer of accommodation.

The second afternoon of the course focussed on age related tasks of the honey bees and how these are related to gland development (e.g. the wax glands on a young bee need to develop before the bee can become a wax worker). The final lecture was on forage and foraging and explained how pollen, nectar, propolis and water are collected and received and the division of bees who carry out this vital work.

I would very much recommend this course on honey bee behaviour by Tony Harris and Ann Chilcott. Both tutors bring a wealth of beekeeping experience and knowledge to this topic and I believe by helping us to understand our bees behaviour, we can improve our practice of keeping these fascinating insects.all! ☺

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- Seeley, T.D., *The wisdom of the hive*. London: Harvard University Press, 1995.
- Seeley, T.D., *Honeybee democracy*. Princeton: Princeton University Press, 2010.



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The Move from Hobbyist to Bee Farmer

**A Healthy 'BEES' Project Course
South of Scotland BKA BeeSpace,
Holywood Station, Dumfries
17th and 18th November 2018**

During 2018 the Healthy 'BEES' Project ran eight two-day courses for intermediate and advanced beekeepers on a wide range of topics, including bee diseases, swarm control, queen rearing, handling skills, honey bee behaviour and bee farming. I was very lucky to be able to attend five of these courses which were perfectly timed to help me with my revision for the SBA modular exams and the intermediate practical exam which I sat (and passed!) in the summer. At that point I hadn't signed up for the course on bee farming as I didn't think it would be relevant to me as a hobbyist managing only 20 hives. However, a conversation with Tony Harris made me realise this course is for anyone who wishes to gain some income from her bees (even if just to cover the costs of an expensive hobby). And so I booked on the course and enjoyed an amazingly informative weekend in Dumfries and Galloway.

The tutors for the Bee Farming course and for all the Healthy 'BEES' Project Courses are Tony Harris and Ann Chilcott, both of whom are Scottish Expert Beemasters with a wealth of knowledge and experience in bees and beekeeping. Tony is also a bee farmer in Moray with over 150 hives and so when discussing some of the practical aspects of making an income from bees we were able to draw on Tony's experience of several years.

Two books and a video of a lecture at the 2017 National Honey Show on becoming a bee farmer were all useful background reading for this course(1,2,3) which began by looking at business models. We looked at different models which could be applicable to beekeepers from selling honey to diversifying into providing a wide range of services. Although many beekeepers may start their business by selling honey, there are several other products of the hive for which there is a growing market, e.g. beeswax candles, soap, balms and creams, propolis and pollen. Some commercial





beekeepers have turned their farms into visitor centres and two good examples of this are Chain Bridge Honey Farm and Quince Honey Farm. Other beekeepers have made honey bee education their business in the form of leading workshops or weekend courses. For every business model a number of considerations need to be made. For example, if selling honey is the main business, should it be sold in bulk or jars, wholesale or retail or both? Where is it to be sold: from the farm gate, at farmers' markets or through shops?

The lecture on business planning encouraged us to carry out a strategic review. Where is our business now, where do we want to be and how will we get there? This was our first practical exercise: planning our business for where we want it to be in three years' time. Of the 12 participants on this course, eight people attending were present with their "business partner" and four of us were planning our individual businesses. We drafted a vision statement for our business and carried out a present positioning audit by listing our strengths, weaknesses, opportunities and threats (a SWOT analysis). Finally we used SMART(4) goals to help us make a short term business plan for 6–12 months and then a long term plan for 12–36 months. We all worked on our own plans but were given the opportunity to share these and learn from others on the course.

The legal aspects of running a business were well covered by first focussing on record keeping and tax returns. Ann's lecture on the differences between being a "sole trader" or a "limited company" was very helpful. Secondly, there was a good review of the honey regulations and food safety with lots of illustrations of good practice from planning the honey extraction room to designing a label for the jar.

I think the highlight of this excellent course was our visit to the honey rooms

of John Mellis in Auldgirth on the Sunday afternoon. John gave us a fascinating tour of the rooms, describing the pros and cons of a wide variety of equipment (including a spin dryer!) and demonstrating how these worked. There was even the opportunity to get hands on practice of using an uncapping machine (so much easier and quicker than using a knife) and seeing jars filled with honey to the exact weight. John demonstrated a method of swarm control which was new to me: it took less than a minute and didn't involve finding the queen or culling queen cells. I think there is still a small risk of a swarm issuing with this method, but I'm tempted to try it on a colony in one of my out apiaries. It was interesting to hear John repeat one of the key principles to running a honey business which Tony had mentioned at the beginning of the course: a honey producer must be able to provide wholesale customers all the year round. This is certainly a challenge for a small producer.

I mentioned earlier that I hadn't booked a place on this course at the beginning of the year because I didn't think it would be relevant to me as a hobbyist beekeeper. How wrong could I be? *Bee Farming: the move from hobbyist to bee farmer* is relevant to all beekeepers who wish to make some income from their bees. There is so much useful information on business planning, record keeping and food safety which is relevant to everyone who sells honey. This course will help you to keep within the law and ensure your customers are purchasing the finest natural products from the hive.

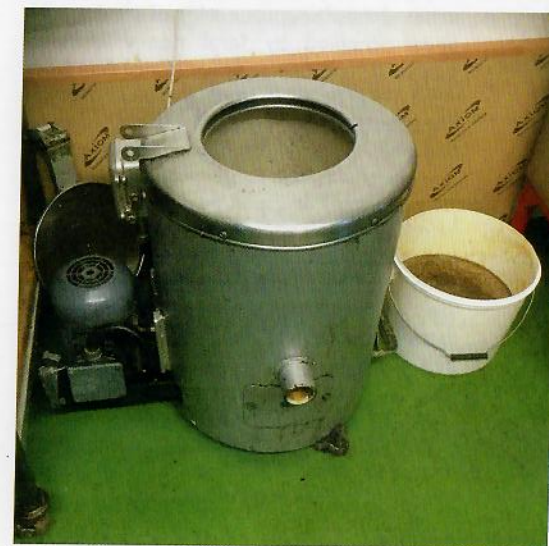
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- (1) Field, O., *Honey by the ton*. Northern Bee Books: Hebden Bridge, 1989.
- (2) Manley, R.O.B., *Honey farming*. Northern Bee Books: Hebden Bridge, 1985.
- (3) National Honey Show 2017. "Climbing the beekeeping ladder" – Margaret Ginman and David Rudland. <https://>



m.youtube.com/watch?v=Fhx-4bg2Uvg
(Accessed 06.11.18)

- (4) Specific, Measurable, Achievable, Realistic, Timed. ☒



Healthy 'BEES' Course



Viruses of a different matter were discussed at the recent Healthy 'BEES' IPM and Adult Bee Disease course at Scotlandwell, Fife run by Tony Harris NDB and Ann Chilcott. With a risk assessment written especially for the Corona virus, a few extra hygiene measures were introduced. Fist bumps replaced handshakes and hugs, soap and sanitisers were in abundance and microscopes were cleansed regularly with alcohol wipes. Students enjoyed a fun, educational weekend looking at all the honey bee pests, including the Varroa mite, *Varroa destructor*, *Braula*, *Braula coeca*, *Tropilaelaps* species and wax moth along with the available methods to control them. Students were provided with sufficient expertise and knowledge of IPM to combat varroa, including monitoring methods, biotechnical controls and chemical treatments and had an opportunity to

practice them on virtual hives. They also looked closely at how colony health is affected by the 'old-fashioned' diseases of Acarine, Amoeba and Nosema and how these can be managed. Practical exercises allowed the students to perform field diagnosis and laboratory skills using microscopes and jewellers' loupes. To finish off this horror story of everything that can go wrong in a hive, the potential threats from other exotic pests of honey bees such as the Small Hive Beetle and the Asian hornet were covered, including identifying features and how to monitor for them.

This is the final year of funding for the Healthy 'BEES' courses with seven more courses planned to the end of 2020. For more information visit www.moraybeekeepers.co.uk and follow the links or go to the Moray Beekeepers Facebook page. 🐝



Diary of a Novice Beekeeper

Throughout February, while the rest of the world was agonising about floods, climate change and coronavirus, I was fretting about fondant. This beekeeping business certainly has a way of concentrating your mind on matters to hand rather than global calamities which you are largely powerless to influence.

A nagging feeling kept bugging me that I'd got something fundamentally wrong with the feeding of my colony. Every Saturday, I was briefly lifting the roof on my solitary hive for a quick peep at the packet of fondant I had placed on the crown board in October, only to find that the feed was still undiminished. Following my method last year, when the colony survived intact, I had cut slits in the base of the bag and placed them over the single, central hole in the crown board. Yet, week after week, the contents of the bag remained unchanged at about 80%. Why weren't the bees taking down more sustenance?

Regular evidence that they were alive and well had been forthcoming. They were coming out for cleansing flights whenever the sun warmed the southerly-facing hive; and a few of them would pop out through the mouseguard as soon as I disturbed the peace of the colony by lifting the roof and inspecting the fondant. Once or twice, I had seen them returning with pollen – possibly from the clumps of snowdrops in our own spinney or from the winter-flowering jasmine on one of the walls of our house. I had also regularly hefted the hive and never found it to be alarmingly light.

Even so, this situation just didn't seem right...

Then I went to a class on "Spring and Summer Management" organised by my local club where the image appeared briefly on the screen of a pack of fondant

resting on top of the frames of the brood box. "Aha!" I almost yelled. "There's the answer". Nobody had ever told me that this was the right approach, yet it seemed so obvious as soon as I saw it.

Less obvious was the execution of this change.

If I removed the crown board and positioned the pack of fondant on the frames, what should I then do with the crown board and the insulating material (a bunch of my older daughter's outgrown knickers) with which it was packed? I do not possess an eke and could not, therefore, see how to position the crown board without crushing the fondant and leaving a gap around the roof.

My first move, however, was to remove the fondant pack from the crown board, open the slits to make sure the bees could easily feed and place it on the frames of the upper brood – as seen in the instructional slide. It was a relief to find that the knickers were completely dry – not a trace of damp. But I was going to need time to work out what next to do with those insulating materials and, in the meanwhile, I returned them to the big Ikea bag hanging in the tool shed which holds our suits and gloves, together with the towel I use for drying the dog after she has gone haring across the mud flats of the Forth on our Saturday morning walks to look at (or in her case, chase) the waders and wildfowl who congregate there. The crown board went into the machine shed beside the hive where I keep all my beekeeping equipment. And then I set to ponder....

.... the pondering having led to no obvious solution after a day or two, I put the question out to tender. In other words, I posted it on one of the Facebook sites for beginners which I follow. An immediate flood of answers put me in the right direction.