



Workshop

Module 1 – Honey Bee Management

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Objectives and experience?





Agenda

- Overview of the BBKA exam system
- Summary of Module 1 syllabus
- Work through exam questions
- Studying for and taking the module exam

Theory Exams	Practical Assessments
Module 1, Honey Bee Management	Basic Assessment
Module 2, Honey Bee Products and Forage	General Husbandry Certificate
Module 3, Pests, Diseases and Poisoning	Advanced Husbandry Certificate
Module 5, Honey Bee Biology	Honey Bee Health Certificate
Module 6, Honey Bee Behaviour	Microscopy Certificate
Module 7, Selection and Breeding of Honey Bees	Honey Bee Breeding Certificate
Module 8, Beekeeping and Honey Bee Management	Show Judge

Module 1 – Honey Bee Management

Beekeeping equipment
and how it fits together
1.1-1.7

Getting started in
beekeeping, including
setting up apiary
1.8 – 1.11

Management of bees
throughout the year
1.12 – 1.15,
1.25 – 1.26

Swarm management
and making increase
1.16 – 1.23

Management of things
that might go wrong
1.24 and 1.27 – 1.31

Section A – Quick Fire Questions

1. What is a Rhombus used for?
2. A prime swarm is the first swarm to leave a colony, what is the second swarm called?
3. Name a self spacing super frame other than a Hoffman?
4. Name the traditional straw item that can be used for collecting swarms?
5. Name a swarm control method that makes the hive taller?
6. What is the name of a strip of metal with 8 mm holes?
7. Lack of queen and brood pheromones can cause what condition?
8. What colour are queens to be marked in 2019 where the international colour coding is followed?
9. What type of foundation should be used for cut-comb production?
10. Approximately how many worker cells are in a standard National brood frame?

- (a) Specify the frame spacing between the midribs of brood combs and explain why this distance is important?
- (b) Name two types of self spacing frame.
- (c) Use a table to specify the advantages and disadvantages of each of the following types of spacing; self spacing frames, castellated spaces

32-38mm

Two bees working back to back

Manley (41-43mm) and Hoffman (35mm)



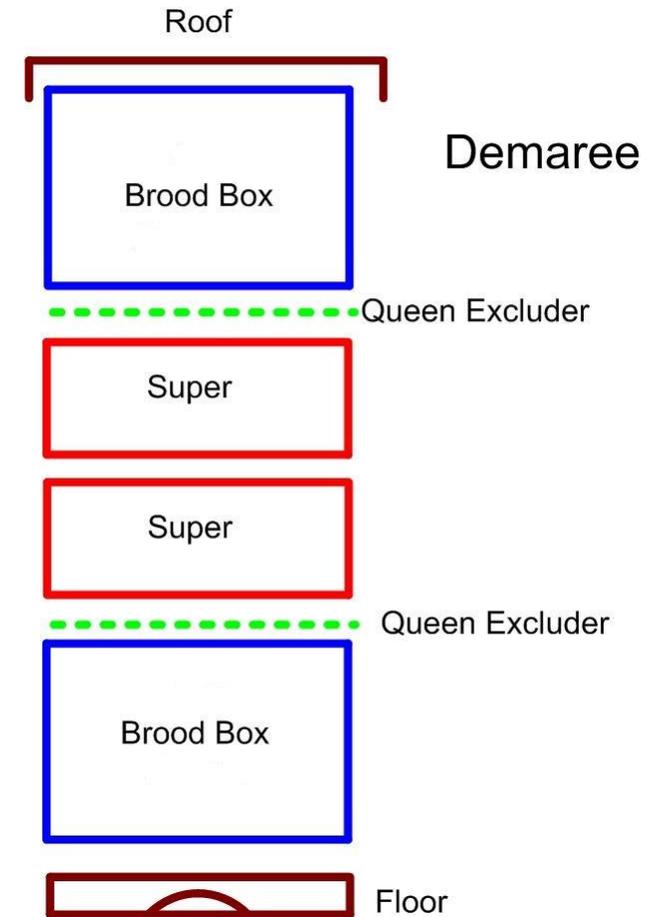
	Advantage	Disadvantage
Self spacing frames	<ul style="list-style-type: none"> • No extra equipment needed • Manley are easier to uncap • No frame slap 	<ul style="list-style-type: none"> • Frames more expensive, • Side bars may not fit extractor • Can be propolised
Castellated spacers	<ul style="list-style-type: none"> • Available in a range of spacings. 	<ul style="list-style-type: none"> • Can be sharp at the edges • Can't slide frames

- (a) List five uses of drawn comb to the beekeeper. 5
- (b) Explain how extra drawn brood comb can be produced for future use 6
- (c) Under what circumstances would colonies be unable to draw foundation? 4

- Moving weak colony onto fresh comb
- Bailey comb change
- Storage of honey
- Encourage bees to draw comb
- Making up frames in mating nucleus

Build up colony to full brood box
 Place second brood box above colony
 Move 2-3 frames of brood to centre of top box
 Pad out bottom box with fresh foundation
 Feed weak syrup
 When both boxes fully drawn, demaree
 Extract honey and store empty drawn compare

Too cold
 Not enough bees
 Not enough young bees
 No income/forage



- (a) Compare the standard national, 14x12 and commercial beehives in terms of:
 - (i) Number of brood frames
 - (ii) Possible number of brood cells available in the brood chamber
 - (iii) Type of frame lugs
- (b) List 2 advantages and 2 disadvantages for each type of hive

	National	Deep National	Commercial
Number of brood frames	11	11	11
Possible number of brood cells	44,000	64,000	60,000
Type of frame lug	Long	Long	Short
	Advantage		Disadvantage
National	Most common so parts cheaper		Small brood capacity
	Easy to handle		Over wintering management
Commercial	Large brood capacity		Frames harder to handle
	Stores on brood frame		weight

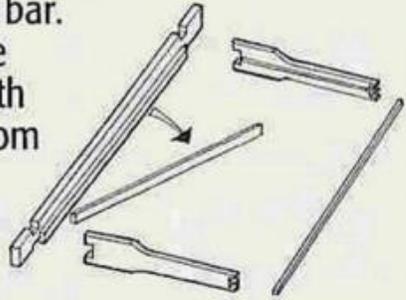


- (a) What is the purpose of wax foundation? 1
- (b) List 5 benefits to the beekeeper of using wax foundation 5
- (c) Which type of foundation is recommended to be used for the production of cut comb 1

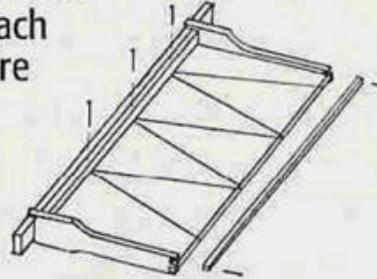
- Purpose
 - Induce bees to draw straight comb
- Benefits
 - Ease of colony inspection
 - Ease of extraction of honey
 - Ease of manipulation
 - Reduces the amount of wax to be produced by bees
 - Can encourage bees to draw either worker or drone comb
- Type of foundation
 - Thin unwired

Frame Assembly Instructions

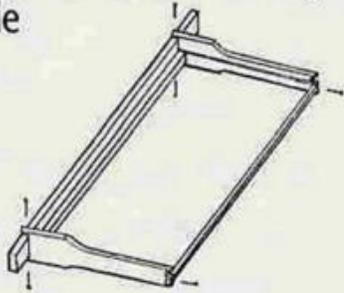
Remove wedge from top bar. Assemble frame with one bottom bar.



Nail the wedge onto the top bar, trapping the bent wires. Nail through each loop of wire and the wedge at an angle.



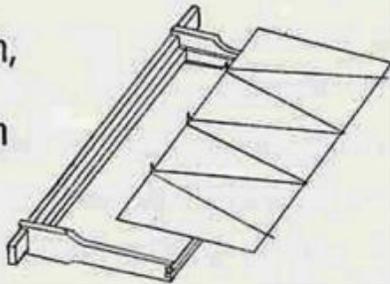
Nail as shown - 2 nails for each side bar, and nail bottom bar up through side bar when nailing hoffman frames.



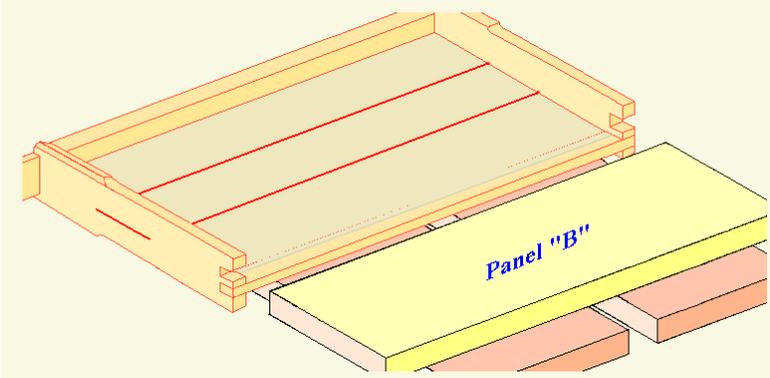
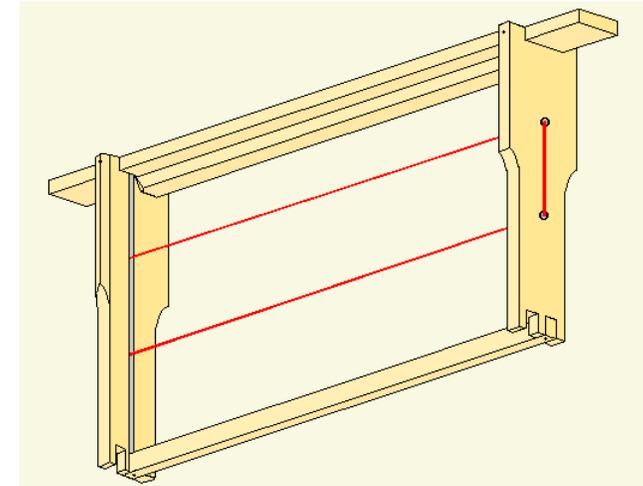
Nail in second bottom bar.



Bend over long loops of foundation, and lay foundation onto top bar.

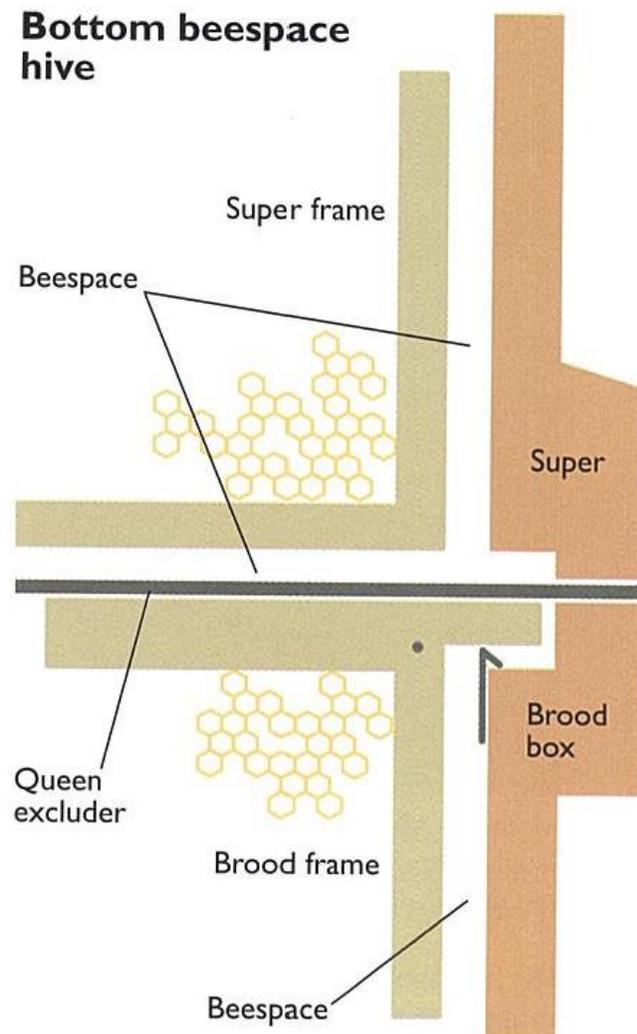
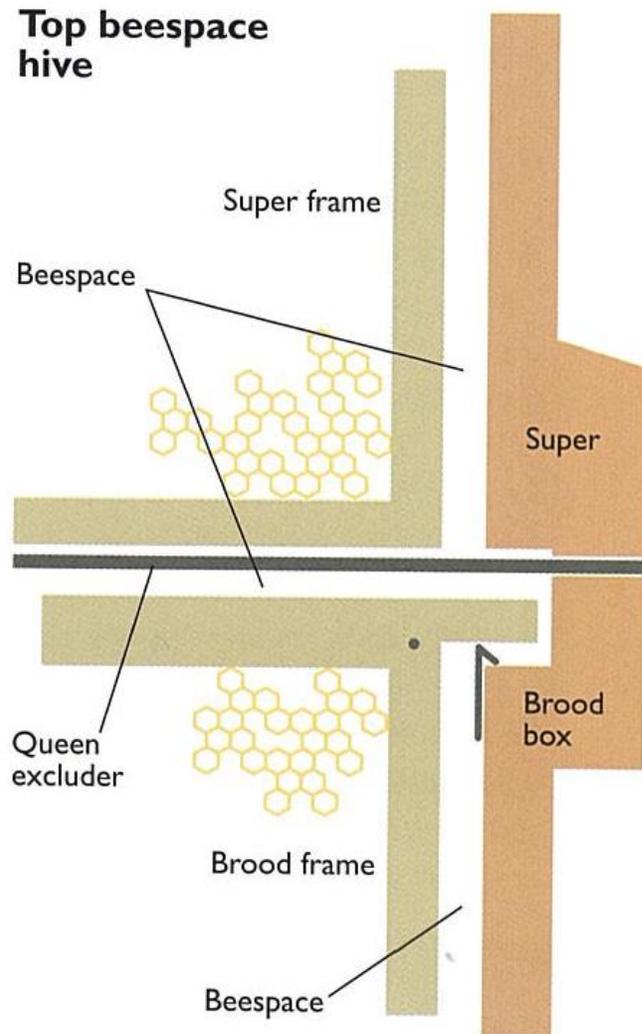


When assembling Langstroth or Dadant frames, you will see there is no groove in the side bar. The normal method is to assemble Hoffman frames with side bars pointing as shown.



Unwired foundation

- (a) Define bee space and explain briefly how the concept has been incorporated into hive and frame design.
- (b) Name ONE "top bee space" hive and ONE "bottom bee space" hive

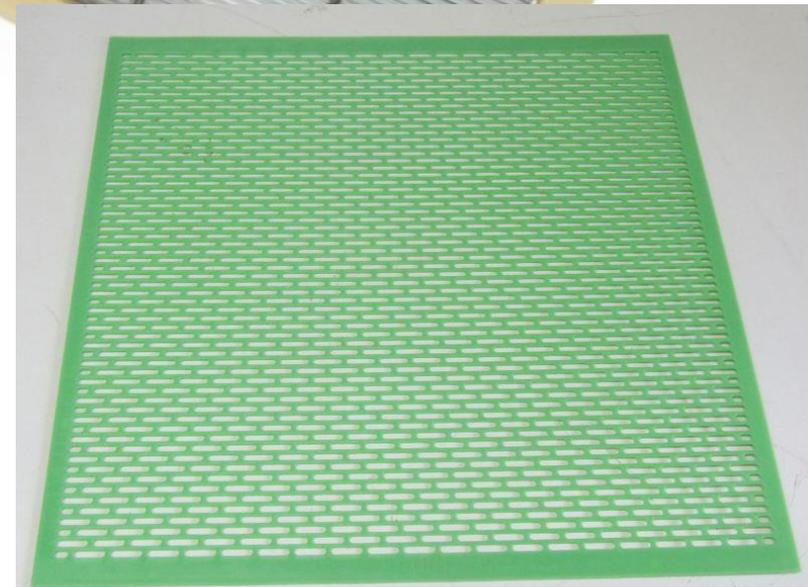


6-9mm

Top: Smith
Bottom: WBC

- (a) List 3 different types of queen excluder
- (b) List 3 uses of the queen excluder
- (c) List 5 precautions when using a queen excluder

- Types of queen excluder
 - Herzog metal, wooden frame
 - Slotted, zinc or plastic
 - Plastic moulded
- Uses
 - Separate brood and stores
 - Retain queen in swarm control or shook swarm
 - Swarm control, queen rearing e.g. Demaree
- Precautions
 - Ensure bee space maintained
 - Unframed QE and bottom bee space clear bees from frame tops
 - Not left too long under swarm/shook swarm
 - Serialise between uses
 - Queen is known to be on the right side of excluder
 - Gaps greater than 4mm



A friend has decided that they would like to keep a couple of colonies of bees.

(a) What should they do before getting bees? 4

(b) Give a breakdown of the equipment they will need in the first two years and the possible costs involved. 8

(c) What possible sources of information are available to beginner beekeepers? 4

- Before

- Attend a beekeeping course
- Read a beekeeping book
- Join an Association
- Help with a colony inspection

- Equipment they will need

- Protective clothing, including disposable £150
- Tools and smoker £50
- One complete hive with frames and foundation £300
- Second hive/nucleus box in case of swarming £70

- Information sources

- Association library
- Internet sites, BBKA/Beebase
- Association meetings
- Mentor



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- (a) List 10 requirements for the ideal rural apiary location for 6 to 10 colonies 10
(b) list 5 different requirements for a suburban home apiary. 5

- Rural apiary
 - Away from public footpaths, bee flight paths
 - Out of sight
 - Protection from livestock
 - Level
 - Sufficient space for 50% more hives
 - Sufficient space between hives for manipulations
 - Not frost pocket
 - South facing
 - Good vehicle access
 - Good forage
 - Water source near by
- Suburban
 - Bee flight away from residents and neighbours
 - Fencing to force bees up
 - Away from neighbours water e.g. pool
 - Storage nearby
 - Good access to hives for manipulation

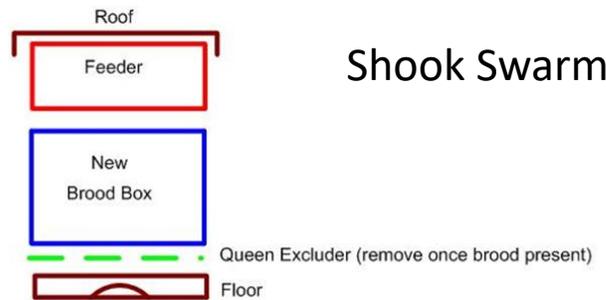
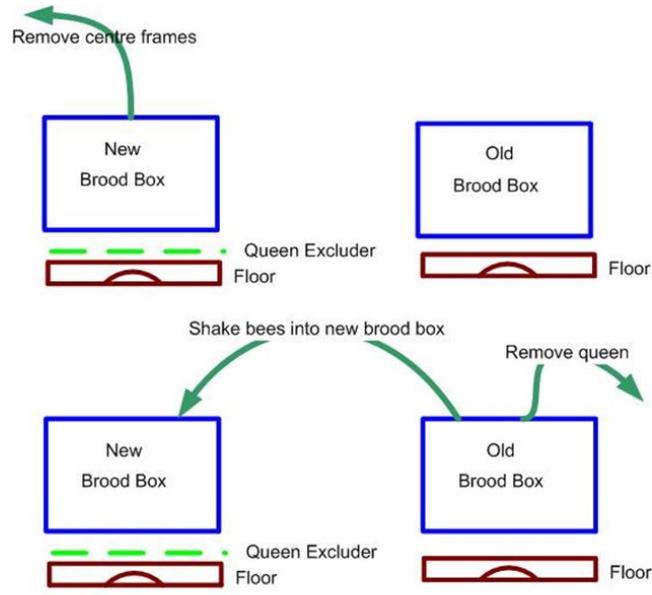


- (a) What is meant by drifting of honey bees? 3
- (b) What issues can drifting cause? 4
- (c) How can the problem be minimised? 8

- Drifting
 - Disorientation, long grass, hives in straight line, no landmarks
 - Genetic tendency, some species are better at orientation than others
 - Weather, prevailing wind
 - Drones Bed and Breakfasting
- Issues - Spread of disease
 - Weakens colonies that loose significant number of bees by drifting
 - Converse recipient colony too many bees for colony
 - Conducive to robbing
 - Can cause loss of queens when flying for mating
- Techniques for prevention
 - Hives should be arranged to enable the bees to find their own colony with ease
 - Entrances should be arranged pointing in different directions
 - Hives should be well spaced at least 1.2 –1.5 m apart
 - Move hives less than three feet or more than 3 miles
 - When arranging hives do not create repeat pictures
 - Drifting at a minimum when hives arranged in a circle, colonies facing outwards
 - Ensure landmarks for bees to map
 - Distinguish the hive with paint colours or identification markers

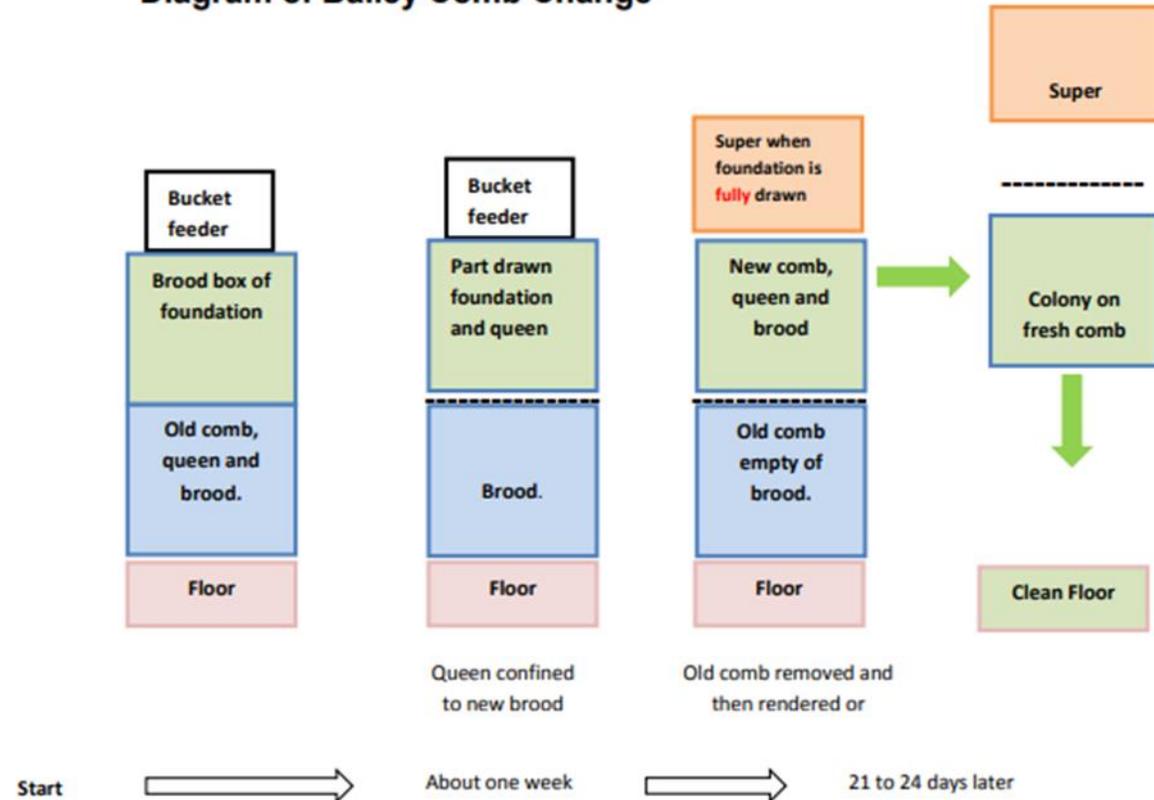
- (a) Why should comb be changed regularly in the brood box? 3
- (b) Name two methods of transferring the colony onto clean comb. 2
- (c) Explain one method by which this can be achieved. 10

Disease prevention, replace gnarled comb, bees benefit from fresh comb



Shook Swarm

Diagram of Bailey Comb Change



©Crown copyright NBU Replacing Old Brood Comb Oct 2014

Shook swam and Bailey comb change

(a) List six beekeeping practices that prevent the spread of disease between hives. 6

(b) How should the beekeeper clean clothes and tools between each apiary visit? 3

(c) You are given a number of cedar hives, including frames and comb by a retiring beekeeper. How would you prepare them for use in your apiary? 6

- Six practices
 - Clean hive tools between hives
 - Clean gloves between hives
 - Never transfer comb between hives
 - Cleanse equipment before re-use
 - Reduce entrances of colonies being robbed
 - Close up hive if colony dead, if cannot be removed
- Cleaning
 - Wash bee suit in soda crystals @60°C
 - Dispose of used gloves in bee tight bin
 - Store tools in serialising liquid
 - 1kg soda crystals to 5 litres water
- Old equipment
 - Remove and dispose of any comb
 - Boil frames in strong soda crystal solution
 - Use new frames and foundation if possible
 - Scrape all the hive parts of wax, propolis and debris
 - Torch the hive, pay particular attention to joints and crevices
 - Repair as necessary to ensure bee tight



Section A, quick fire, Answers

1. What is a Rhombus used for? **Clearing Bees**
2. A prime swarm is the first swarm to leave a colony, what is the second swarm called? **Cast**
3. Name a self spacing super frame other than a Hoffman? **Manley**
4. Name the traditional straw item that can be used for collecting swarms? **Skep**
5. Name a swarm control method that makes the hive taller? **Demaree**
6. What is the name of a strip of metal with 8 mm holes? **Mouse Guard**
7. Lack of queen and brood pheromones can cause what condition?
Laying worker
8. What colour are queens to be marked in 2019 where the international colour coding is followed? **Green**
9. What type of foundation should be used for cut-comb production? **Un-wired**
10. Approximately how many worker cells are in a standard National brood frame? **Five thousand**

Bee Equipment - What am I?

- The frames inside me have short lugs
- I have hand holds
- I can sit on a National Floor
- I have space for 60,000 brood cells



Section A – Quick Fire

- Other than nectar or pollen, what do bees forage for on sunny winter's day?
- How frequently should a colony be inspected to check for unsealed queen cells?
- Which hive type has the largest frame size?
- Other than sugar and/or fondant, what else might a beekeeper feed in Spring?
- After whom are self-spacing brood frames named?
- With what do worker bees polish cells and fill gaps?
- What is the recommended strength of sugar syrup used in autumn feeding?
- What is the best time of day to move bees?
- Drone brood in worker cells with a normal lay pattern is an indication of what condition?
- When marking a queen, for what purpose is a Baldock cage employed?

A colony is going into winter after the honey crop has been removed. List any actions required to sustain the colony until the first spring inspections in late March. 15

- Treat for varroa
 - MAQs ideal if temperature right
 - Otherwise Apiguard
- Carry out disease inspection
- Unite colony if too small
- Feed colony thick syrup
 - 1kg sugar 630ml water
 - Stop liquid feed when no longer taken down or November
- Make sure equipment is weather tight
- Fix woodpecker protection
- Fit mouse guards, before 1st frost
- Secure hive against wind
- Under super/ remove QE
- From late October heft regularly
- If short of stores feed fondant
- On sunny days check bees are flying
- Make sure access to water in sun close to apiary
- March
 - Remove under super/Add QE
 - Remove hive protection



Describe how and with what to feed bees in the following times and conditions:

- (i) preparing a full colony for winter ` 4
- (ii) feeding after removal of rape honey during a period of bad weather 3
- (iii) late winter emergency feeding 1
- (iv) in a situation where a colony is starving in the summer. 2

- Preparing for winter
 - Thick syrup
 - 2 kg sugar to 1 litre water or 1 kg sugar to 63ml water
 - Via rapid feeder
 - Minimum stores 20 kg
- After removal of OSR
 - Feeder directly above brood box, super above
 - Weak solution
 - 1kg sugar to 2 litres water
- Winter emergency
 - Fondant over crown board hole
- Starvation
 - Spray bees with weak sugar syrup
 - Fill empty comb with sugar syrup
 - Frame feeder



Bees eating fondant



Rapid tray feeder

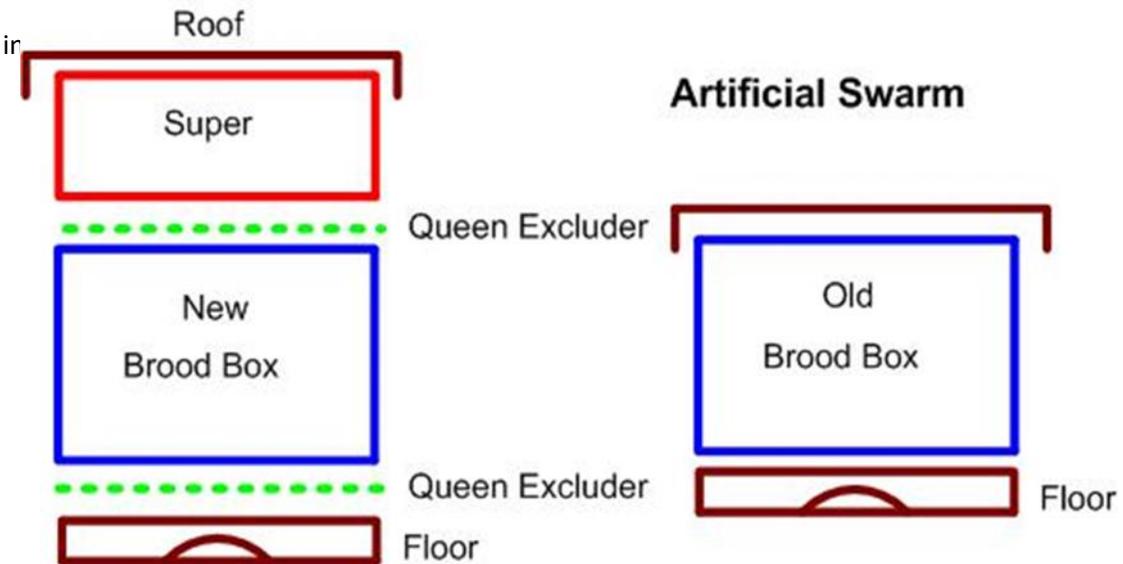
List actions that a beekeeper could take to prevent swarming

- Frequent Colony inspections
- Young prolific Queen
 - Replace queen every two years
- Maintain adequate space
 - Provide a brood box large enough to accommodate large colony population
 - Ensure sufficient supers to provide sufficient storage space
- Remove brood
- Clip queen
- Good hive ventilation



Describe the Pagden method of swarm control, include the Heddon variation

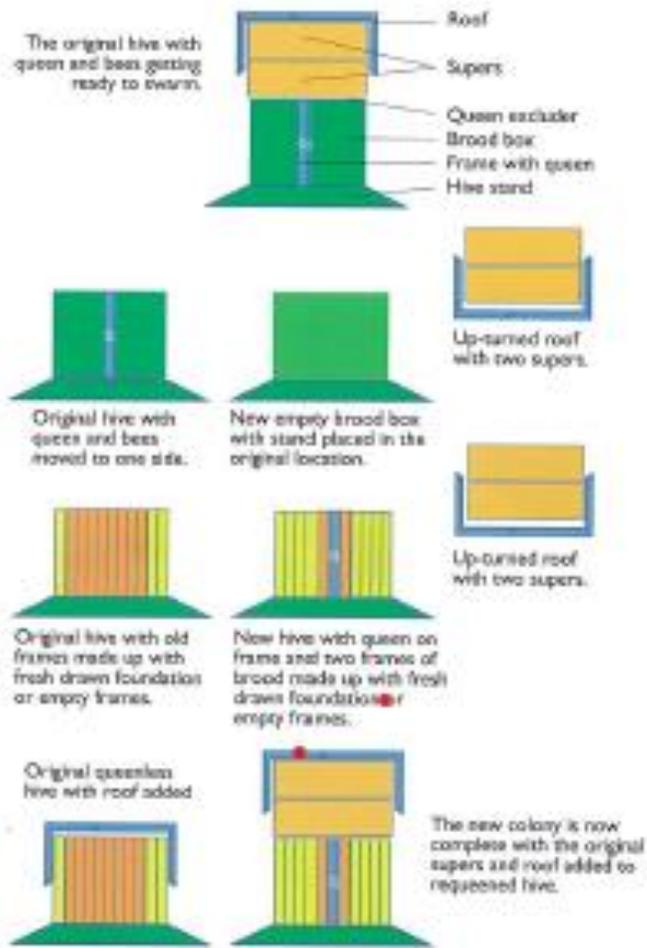
- Remove any supers and move the old hive to a stand 1 metre away
- On the original site, place a queen excluder above a floor and a new brood box of foundation with space in middle
- Go through the original hive and find the frame with the queen on
- Carefully remove any queen cells
- Put the frame with the queen into the centre of the new brood box
- Find a frame with no queen cells and open brood
- shake the bees into the new box which already bears the queen
- Put on a queen excluder, any supers and the roof above the new brood box
- If there are no supers and there isn't a nectar flow, feed the bees with a strong syrup
- Go through the original hive and select 2 open queen cells and mark the frame/s they are on
- Tear down any other queen cells on frame(s)
- To find any remaining queen cells, go through every other frame, shaking the bees off into the original brood box and breaking down all the queen cells on the frames
- Reduce entrance, put on a crown board and roof DO NOT FEED for 48 hours
- Remove QE from below new brood box after 48 hours
- After 5 days, check and remove any additional queen cells in the old box



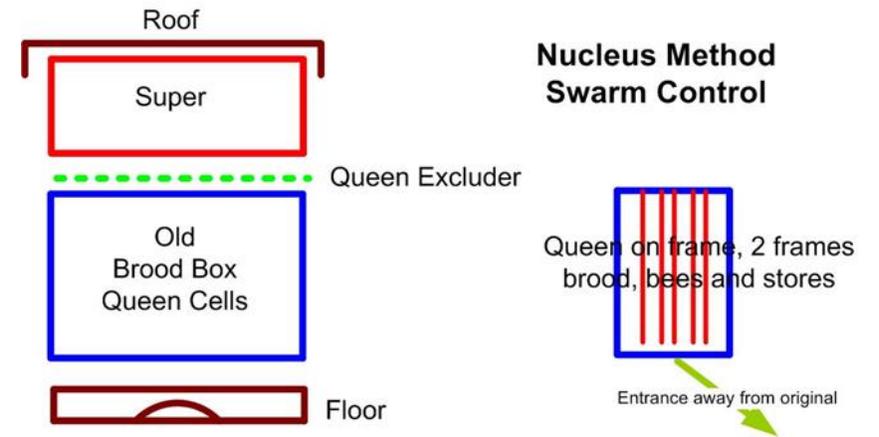
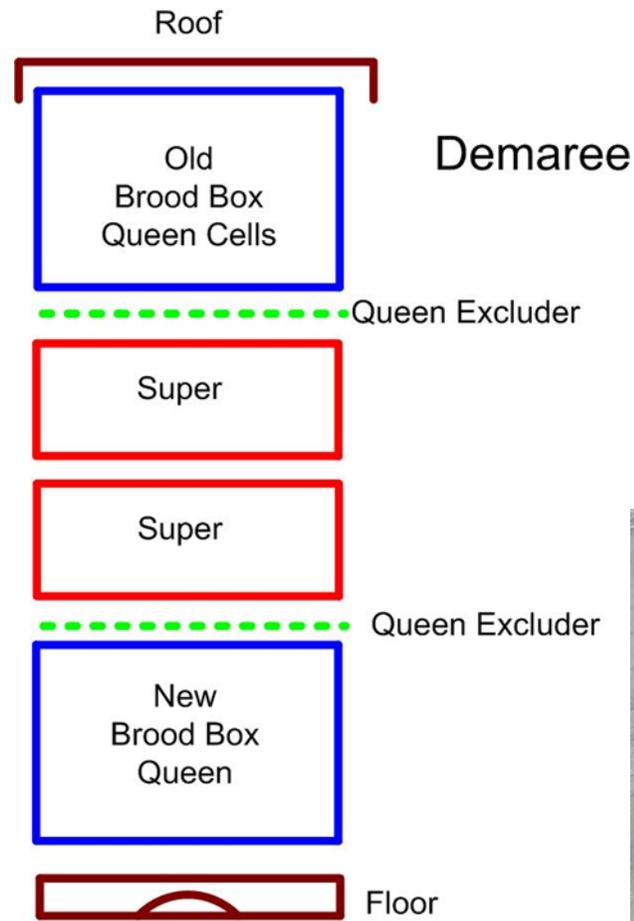
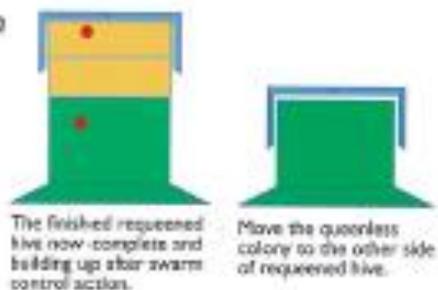
Day 7, move old brood box 1 metre to the other side of new brood box
Leave this hive undisturbed for 3 weeks

After 3 weeks, check old brood box for laying queen.

The Pagden method of swarm control



The Heddon variation (After 7 days)



- Day 1: Open top left entrance.
- Day 3: Close top left, open bottom left and top right.
- Day 10: Close bottom left and top right, open bottom right and top back.

- (a) Explain how to mark a queen using a Baldock cage 5
- (b) Describe how to pick up and mark and clip a laying queen 7
- (c) Give the advantages of clipping and marking queens 3

- Mark a queen using Baldock cage
 - Find the queen
 - Place crown of thorns over queen
 - Allow workers to escape
 - Gently press cage drop, trapping the queen
 - Mark the queen
 - Allow ink to dry and release queen
- Clip and mark a queen
 - Smoke hands
 - Find queen
 - Assuming right handed, hold frame at an angle with left arm and allow queen to walk up
 - Catch the queen by wings, place frame she was on in the brood box
 - Present to fore finger of left hand and clasp all legs for security
 - Dab paint/ink on back of thorax
 - When queen calm cut 1/3rd of one forewing
 - Take care not to cut rear leg
 - Place queen on comb she came from watch for acceptance
- Advantages
 - Easier to identify and find the queen
 - Records age of queen (colour code)
 - Retains bees if attempt to swarm
 - Allows longer period between inspections



Colour	Year
White	1 and 6
Yellow	2 and 7
Red	3 and 8
Green	4 and 9
Blue	5 and 0

(a) Explain how to create a 5 frame nucleus for retaining an established queen for future queen rearing. The nucleus will remain in the same apiary. 9

(b) Give 6 other uses for a nucleus colony. 6

• Create nucleus

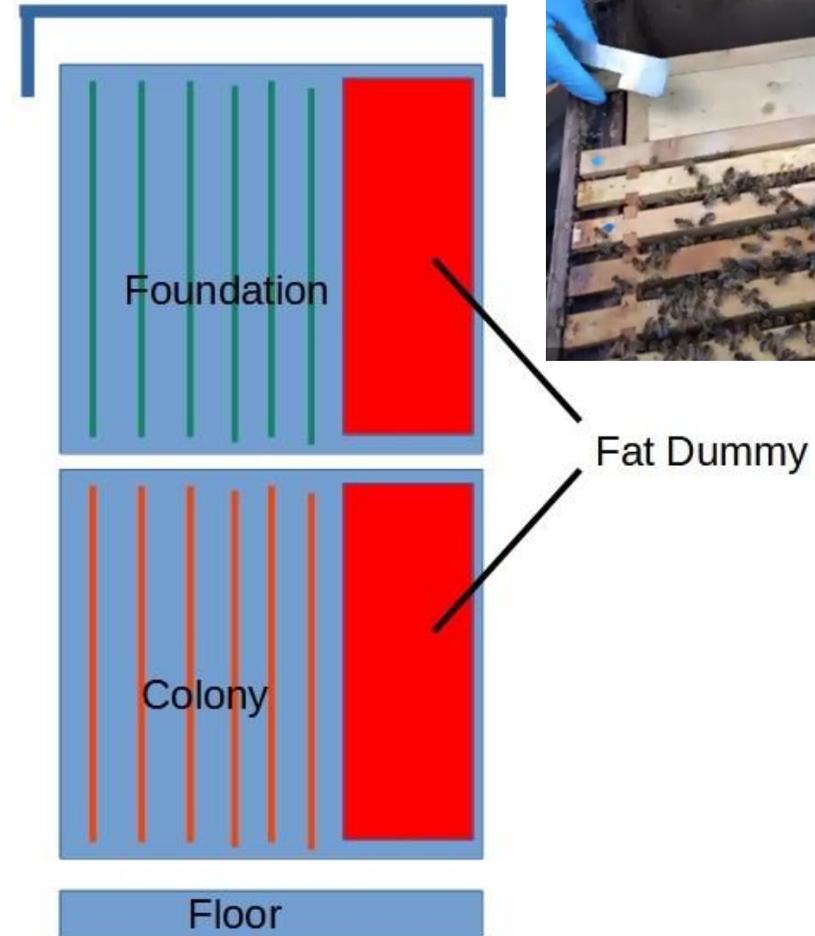
- Find the queen and place in a queen cage with a few workers. Put cage in a safe warm place
- Place a nucleus box next to the colony with the entrance facing away from original hive
- Take 2 frames of mainly sealed brood with stores and bees
- 1 frame of unsealed brood with stores and bees
- Place queen cage on the frame of open brood
- 2 frame of pollen and honey/nectar and bees
- Give a small shake to each frame over parent colony to dislodge the older bees
- Add extra bees by a vigorous shake into the nucleus to dislodge the young house bees
- Place frames of unsealed brood in centre of box, flanked by sealed brood, outer frames of food
- Plug entrance with loose herbage



	Other uses	
Swarm control	Making increase	Mating
Queen introduction	Winter back up	Pollination in greenhouses
Backup queen	Holding queen cells	Observation hive
Comb building	Sale of bees	Uniting

Describe how to turn an over wintered nucleus into a productive colony, include any precautions 15

- Feed the colony
 - Stimulate the colony with weak syrup
 - 1kg sugar to 1 litre of water
 - If low in pollen store feed pollen substitute
- Move the nucleus to a brood box
 - Dummy down to restrict space and help maintain warmth
 - When bees on all frames add additional frame to either side of nest
 - Sterile drawn comb ideal
- Add super
 - When brood box fully drawn
 - Or bees on all frames in brood box
 - Add queen excluder and super
 - Stop feeding
- Precautions
 - Always maintain warmth, polystyrene hive ideal
 - Do not let brood nest expand beyond 9 frames (in 11 frame brood box)
 - When colony small reduce entrance, increase as colony expands
 - Avoid adding supers or additional frames too soon as colony will chimney



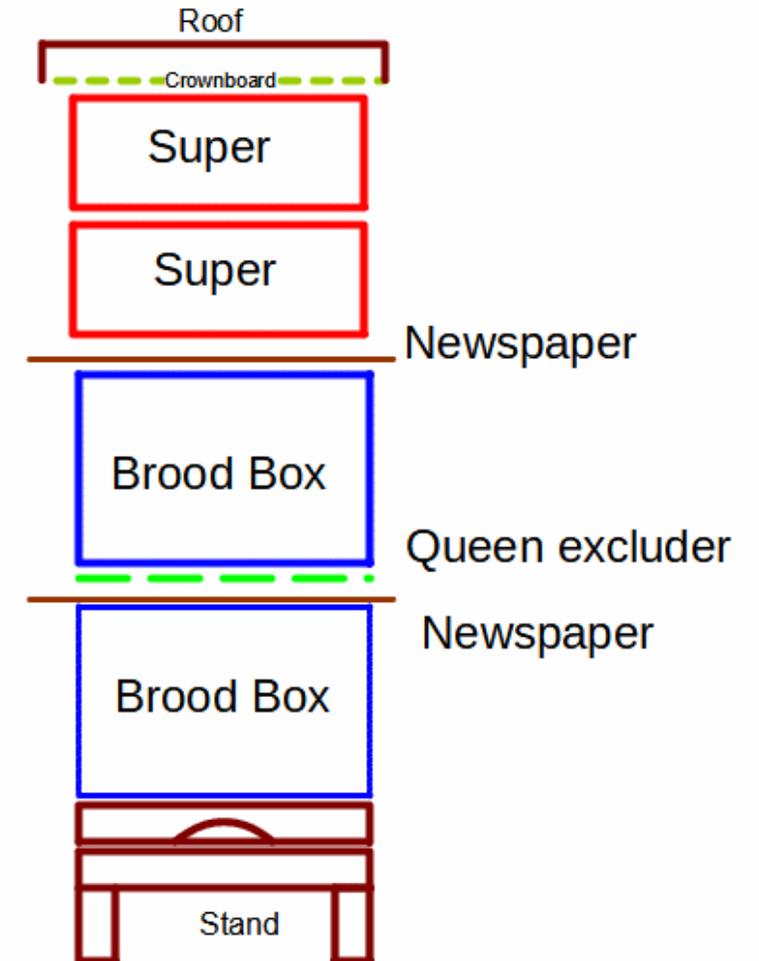
Briefly describe how to collect a swarm on a branch 1m off the ground and subsequently hiving it in an isolation apiary 15

- Have all equipment and land owners permission to remove swarm
- Place sheet on ground below swarm
- Hold swarm box beneath the swarm
- Shake branch so bees fall into swarm box
- Place swarm box on sheet below location of where the hive was
 - If using open box, upturn on sheet and prop up corner to form entrance
- Watch swarm for a bit to check bees entering and to make sure not returning to the branch
- Leave until dusk
- Prepare hive in isolation apiary, fresh foundation
- Queen excluder below brood box
- Return to swarm at dusk, wrap swarm box securely in sheet
- Transport to isolation apiary and place next to new hive
- Open hive and remove centre frames
- Gently unwrap swarm box
- Hold above brood box and with sharp shake drop swarm into hive
- Close up frames and replace removed frames
- Leave for 48 hours before feeding



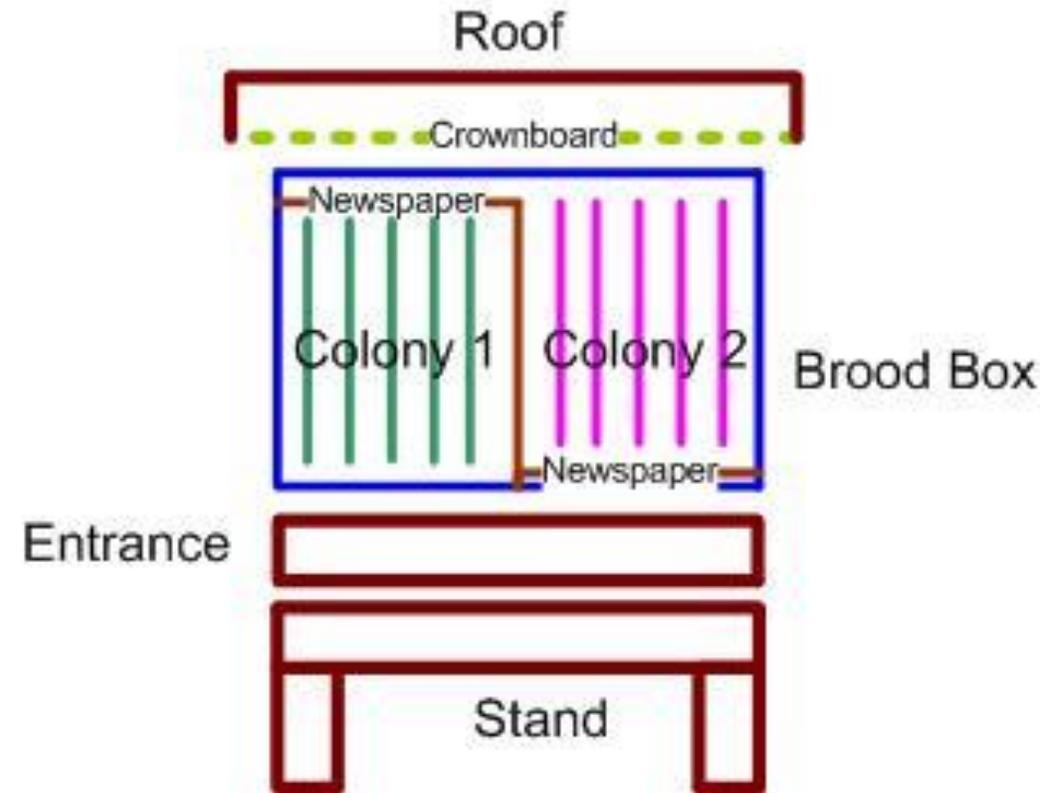
- (a) Give two reasons why uniting colonies is undertaken in the autumn. 2
- (b) Describe how colonies from opposite sides of the apiary are prepared for uniting. 2
- (c) Describe how uniting is achieved with two full sized colonies, each with 6 frames brood. List the precautions necessary. 7
- (d) Give one sign that uniting has taken place 1
- (e) Describe how the combined colony is brought back to normal in one brood box. 3

- Reasons
 - Build strong colony for winter
 - Prepare colony for autumn forage
- Preparation
 - Move gradually 1m at a time
 - End location side by side with entrances in same direction
 - If possible, remove supers
- Sign
 - Paper under hive
- Single brood box
 - Move all brood into single brood box
 - Ensure queen in bottom box
 - Sealed stores scraped and sprayed with water
 - Place second brood box with stores and extra sealed brood above crown board



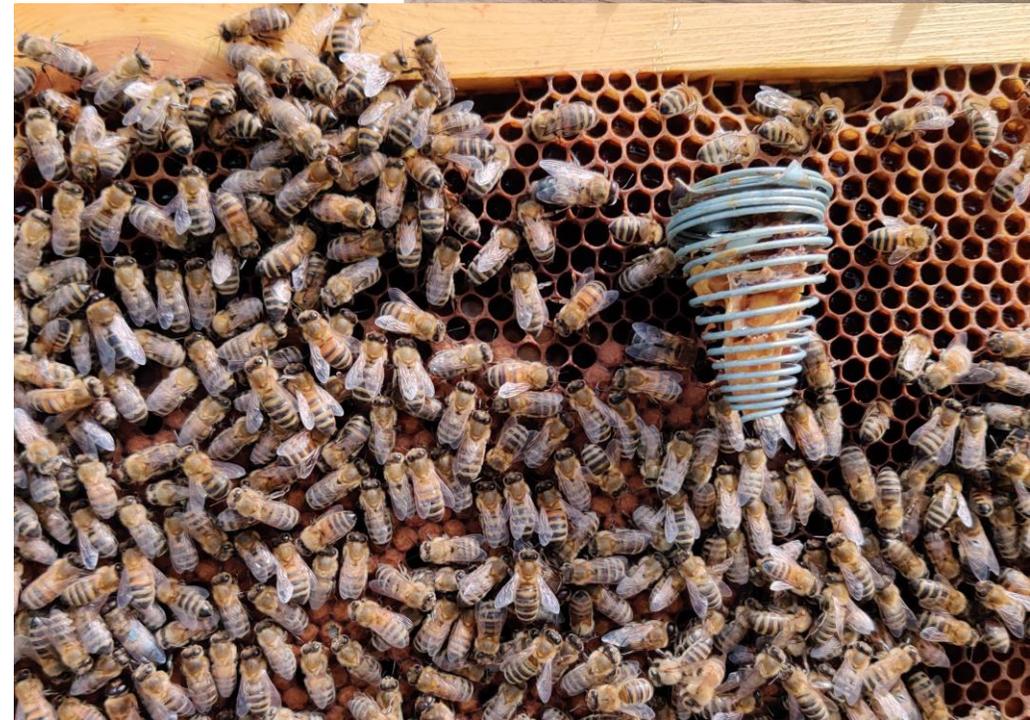
Uniting steps

- Choose which queen to keep
- During the day
 - Cage both queens in respective colonies
 - Queen to be removed, cage sealed on top bar
 - Queen to be retained, cage open, ample fondant
- Does not matter which order boxes are
- When bees have stopped flying
 - Remove the queen in sealed cage
 - Place sheet of paper over bottom box
 - Hold down with queen excluder
 - Slash paper and spray lightly with water
 - Place second box above queen excluder
 - If supers, place newspaper over second box then supers
- Leave for 6 days



- (a) Describe how a young virgin queen could be introduced into a small colony 3
- (b) Describe how to introduce a mated queen into 5 frame queenless nucleus 5
- (c) Describe a method of introducing a mated queen to a large colony 3
- (d) List three methods of protecting a queen cell when introducing to a colony 3

- Virgin queen
 - Run the queen in
 - Check colony is queenless and no queen cells
 - Allow the queen to run in between outer frames
- Mated queen to nucleus
 - Queen in queen cage
 - Remove attendants if present
 - Fill end with fondant and open gate
 - Fix cage to the face of a comb with open brood
 - Leave for 6 days
- Large colony
 - Make nucleus from colony
 - Introduce queen to nucleus
 - When accepted unite nucleus with colony
- Protect queen cell
 - Hair roller
 - Cell protector
 - Silver foil



- (a) What precautions can a beekeeper take to prevent robbing? 7
- (b) What are the signs that hives are being robbed? 4
- (c) If robbing by wasps is suspected, how can it be curtailed? 4

- Precautions
 - Feed in evening and all hives at the same time
 - Clean up spillages and debris
 - Maintain strong and healthy colonies
 - Entrance size appropriate to colony strength
 - Space and orientate hives with diverging flight paths
 - When inspecting cover supers
 - Put up wasp straps in apiary
 - Do not position hive near forage
- Signs
 - Fighting at entrance
 - Zig zag flight of bees entering hive
 - Dispersed colony within hive
 - Uneven edges to uncapped honey stores
 - Bees fly out when cover board removed#
- Curtail
 - Reduce entrance
 - Create an indirect entrance
 - Move the colony to another apiary
 - Locate wasp trap by the hive



Describe how to prepare and move a colony 30 miles, include any precautions that should be taken 15

- Preparation
 - Inspect colonies and ensure all frames are “fast” and hives bee tight
 - Check the weather forecast to ensure conditions appropriate
 - Above 10°C but not too hot
 - If possible remove supers to lighten load
 - During the day of the move replace the crown board with a travelling screen
 - Strap the hives up
 - Replace roof
 - Put spare equipment, water supply, protective clothing and beekeeping tools in vehicle
 - Best time to move colonies is in the evening or early morning after bees stop flying
 - At dusk close up the entrance
- Move
 - Remove the hive roof
 - Place hive in vehicle with frames lengthways to the direction of travel
 - Place wet sponge on travelling screen
 - Stop regularly to ensure the bees have sufficient water, spray if necessary
- Arrival
 - Place hive on stand, replace roof and let it settle
 - Open entrance and let the colony orientate
 - Ideally after 24 hours
 - Remove straps, replace travelling screen and check the frames have not moved within the hive
 - Leave for a week before 1st full inspection



(a) Describe 2 different methods of clearing bees from supers giving the advantages and disadvantages of each method. 13

(b) Name two other methods for clearing bees 2

- **Methods**

- **Clearer board**

- Move super(s) to be cleared of bees to top of hive
 - Make sure there is space below the super(s) to be cleared for the bees to move down to
 - On warm sunny day
 - Insert the clearer board below the super(s) to be cleared
 - If porter bee escape leave for up to 24 hours
 - If rhombus, Canadian etc. remove supers after 3 hours
 - Advantages
 - Simple to use
 - Employs bees natural tendency to move down the hive to collect more nectar to process
 - Disadvantages
 - If not good weather or clearer not set up correctly bees will not move down

- **Shake and brush**

- Place empty super on upturned roof to rear of hive
 - Remove the super to be cleared and place near the empty super
 - Go through each frame in the super to be cleared and shake the bees back into the hive
 - Brush off any remaining bees
 - Place cleared frame in empty super
 - Cover the new super between frames
 - Advantages
 - Can be done at any time irrespective of weather
 - Disadvantages
 - Disruptive
 - Bees can get everywhere

- **Other methods**

- Chemical repellent
 - Air blower



List 4 symptoms of a minor reaction to a bee sting 4
What treatment should be recommended in this case? 8

- Symptoms

- Stinging pain
- Redness
- Swelling
- Irritation

- Treatment

- Reassure the casualty
- If you can see the sting, brush or scrape it off sideways with something firm like a fingernail as soon as possible.
- Don't try to use tweezers to pull it out
- Raise the affected area and hold something cold against the injury to help reduce the swelling, like an ice pack or a frozen bag of vegetables wrapped in a tea towel
- Keep the cold compress on for at least 20 minutes
- If the sting is in the mouth or throat, the casualty can suck an ice cube or sip cold water to try to prevent any swelling
- Take an over-the-counter pain reliever as needed, such as ibuprofen, to help ease any discomfort
- Apply hydrocortisone cream or calamine lotion to ease redness, itching or swelling.
- If itching or swelling is bothersome, take an oral antihistamine
- Avoid scratching the sting area



List 4 signs that a colony is bad-tempered 4

- Fly up and become defensive when hive opened
- Run over the comb
- Follow you when you leave the hive
- Become defensive when hive is approached



What actions can be taken by a beekeeper to avoid bad-tempered honey bees causing a nuisance to the public? 12

- Choose an appropriate site to minimise the risk when planning an apiary
- Do not site any hive so that the bees flight path to forage or water supply is across an area used by others
- Ensure good water supply local to hives
- Re-queen with more docile strains
- Raise queens from best queens, not swarms
- Gentle handling maintains good temper
- Inspect at optimum times, midday/afternoon in good weather
- Do not inspect in bad weather
- Do not interfere with bees too often
- Minimise stresses, healthy well-fed bees are happy bees
- Be aware bees become defensive at the end of seasonal nectar flow
- If a swarm has been out for more than a day keep bystanders at a distance
- Avoid major disturbances to hive at times of neighbours having outside activity
- Cull bad tempered bees



Describe a method to re-queen an aggressive colony 15

- Set up stand several yards away from colony
- Heavily smoke the colony
- Remove roof and supers
- Move brood box and floor to new stand
- Leave open
- Place new floor on original stand
- Place supers and roof on new floor
- Go and have a cup of tea (leave for period so flying bees exit)
- Find queen and cage her with exist permanently blocked
- Make up a nucleus from colony with the new queen
- Return brood box to the original stand
- Place the nucleus next to colony with entrance in same direction
- After 1 week move the brood box away as above
- Remove any queen cells
- Remove old queen (still in cage)
- Return brood box to original stand
- Unite the nucleus and colony (protect the queen)



(a) What conditions are likely to lead to:

(i) drone laying queen 2

(ii) laying worker 2

(b) List the similarities and differences between a colony containing a drone laying queen and one containing laying workers. 5

(c) What steps could be taken to remedy a colony with a drone laying queen? 6

- Causes of drone laying queen
 - Poorly mated new queen
 - Injury to queen
 - Queen old age
- Causes of laying worker
 - Colony queenless
 - All brood emerged
 - Lack of brood and queen pheromone
- Similarities
 - Drones laid in worker cells
 - Stunted adult drones
- Differences
 - DLQ, queen present. LW, queenless
 - DLQ, single egg in bottom of cell, LW, multiple eggs on side wall of cell
 - DLQ, normal brood pattern, LW, haphazard laying pattern
- Remedy drone laying queen
 - Unite colony with queen right colony
 - Move queen right colony close to drone laying queen colony
 - Find and remove drone laying queen
 - Cage laying queen with gate open and fondant
 - Unite with newspaper method
 - Drone colony below
 - After a week rearrange colony into single brood box



List the signs of a queenless colony 7

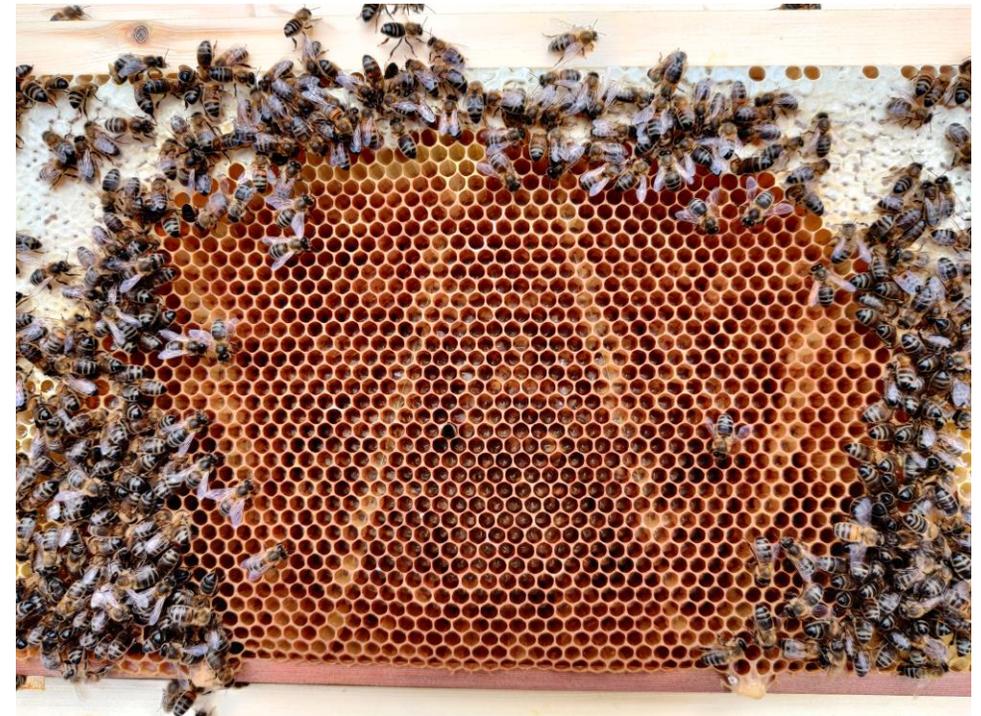
Briefly describe a method of confirming queenlessness 3

- Signs

- No eggs, larvae or capped brood cells (though of eggs and larvae can mean virgin queen)
- Colony more irritable than usual
- Colony roar when opened
- Bees seem less well organised on the frames
- Very few brood cells polished up ready for queen to lay egg
- Pollen in brood nest will be shiny from being covered with honey in order to preserve it
- Possibility of eggs from laying worker
- Stores not being built up

- Method of confirming condition

- Remove a frame of eggs and young larvae from another hive
- Shake off bees
- Insert frame in middle of queenless brood box
- If after several days workers make queen cells, indicates queenless



Section A – quick fire **Answers**

- Other than nectar or pollen, what do bees forage for on sunny winter's day? **Water**
- How frequently should a colony be inspected to check for unsealed queen cells? **weekly**
- Which hive type has the largest frame size? **Dadant**
- Other than sugar and/or fondant, what else might a beekeeper feed in Spring? **Pollen substitute**
- After whom are self-spacing brood frames named? **Hoffman**
- With what do worker bees polish cells and fill gaps? **Propolis**
- What is the recommended strength of sugar syrup used in autumn feeding? **2:1 or 1kg:630ml**
- What is the best time of day to move bees? **Evening**
- Drone brood in worker cells with a normal lay pattern is an indication of what condition? **Drone laying queen**
- When marking a queen, for what purpose is a Baldock cage employed? **Holding the queen steady**

Studying to take module

- Take time
 - Start 6 months before
- Break the syllabus up
 - Focus on an area at a time
- Read around the topic
 - Choose a couple of good books
 - Use BBKANews site
- Study group
 - Join a study group
 - Sign up for correspondence course individual/group
- Do past papers
 - Save one to take as a mock
- If taking online
 - Sort out technology early in the process
 - Re-check 7 days before the exam
 - There are online demos to practice technique





Any Questions