

Products from the Hive

Nick Lambert
19th Feb 2010

The Raw Materials

- Honey
- Wax
- Bees
- Pollen
- Propolis
- Royal Jelly
- Bee Venom

Different Pure Honey Products

- Runny/liquid
- Soft set (creamed honey)
- Set honey
- Chunk honey (chunks of honey comb in liquid honey)
- Cut Comb (single piece of comb)
- Heather Honey

Properties of Honey

- Heating will turn set honey runny (45 – 60 degrees)
- Heating will reduce the viscosity (good for filtering)
- Heating will increase HMF (Hydroxymethylfurfuraldehyde)
 - HMF is a sugar breakdown product it increases with age and heating
- Over time (most UK) honey will set
- Honey does not conduct heat very well.
 - Takes a while to melt through
- Runny Honey will flow silently! (Easy to over fill containers)
- Storing honey in cold reduces the size of crystals and reduces speed of crystal growth.
- Honey is denser than wax (Liquid wax will float on top of honey)
- Honey is hygroscopic
- Honey dissolves easily in water

Hive Equipment for Honey

- Honey Super(s)
 - A box which holds frames for collecting honey
 - Smaller than a brood box (less height)
 - May have less frames
- Super Frames
 - New Foundation
 - Unwired
 - Wired
 - No foundation
 - Old Drawn frames
 - Slot Method

Hive Equipment for Honey

- Queen excluder
 - Device to prevent queen passing through whilst allowing worker bees past
- Clearer boards
 - A one way valve to let bees through but not back

Getting Honey into the Hive

- We need
 - Plenty of healthy bees
 - Good weather for the plants to grow and produce nectar
 - Good weather for the bees to collect nectar
 - Suitable space available in the hive to store the crop

Basic Idea – ideal bees

- Place a queen excluder on the brood box
- Place super(s) with foundation on top and replace the lid
- Worker Bees quickly come up and draw all the foundation
- Worker Bees fill up all super frames with honey
- Bees cap all frames ready for you to take the honey

Things which might happen

- Bees don't come up straight away
 - Sometime the workers need a period of time without a queen excluder in order to draw fresh comb.
 - Don't leave it too long before you put the queen excluder on or you'll get brood in the super.
 - Make sure queen is in Brood box first!
 - You only need a bit of drawing out to have started not the entire box drawn out!

Things which might happen

- Chimney Bees
 - Some bees like to fill just a few frames in each super
 - Reorganise the frames to get a full box
- Uncapped frames
 - Put these in the Chimney move the capped ones out of the Chimney

Things which might happen

- The Honey flow stops before the supers are full.
 - Warning - Bees might get tetchy
 - Sort frames ready for extract
 - Bees might not cap honey and eat it all
- Unsealed patches of non dripping honey in frames are OK to take
- If you leave capped honey too long it will set in frames
 - Check brood stores
 - Bees may need the super stores
 - If you take all the honey you may need to feed

Removing Honey

- Clearing the bees out of the super – two visits
 - Choose a nice day when the bees will be flying
 - Put the supers to be cleared at the top of the hive
 - only clear two at a time
 - Put clearer board under supers
 - Check space for the ousted bees add an empty super under clearer
 - Come back in the evening or next day and remove the supers if clear.
 - Check each frame is clear
 - Blow/brush/shake off any stragglers

Removing Honey

- Leaf Blower Method single visit
 - Remove supers and place on side on top of closed hive frames vertical
 - Use leaf blower to remove bees
 - Take each frame out and give a final blow
 - Put frames in bin bag so bees can't get back on.
 - Be careful not to step on blown off bees

Processing the Honey - Runny

- Equipment
 - Uncapping knife or fork
 - Uncapping tray
 - Extractor
 - Settling tank
 - Filters
 - Refractometer
 - Storage containers
 - Honey Jars
 - Honey Buckets

Extracting Honey

- Check honey is still liquid
 - Use warming cabinet to thin
- Remove the cappings
 - Recover honey from cappings
 - Leave over night in a sieve to drain
 - use a Pratley tray to melt wax
 - You can make mead from cappings
 - You can feed cappings back to your bees
- Place uncapped frames in extractor
- Spin out honey
- Empty extractor via filter in settling tank
- Check water content
- Once settled decant into jars or honey buckets (food safe plastic)
 - Filter more finely if required – depends on market

Honey Processing

- Honey Jars have standard sizes
 - 500g
 - 454g – 1lb
 - 227g – 8 oz
- Fill jars such that you can't see a gap under lid

Labelling Honey

- Label must have
 - Weight in Grams
 - Producers name
 - Contact info for producer
 - Country of origin “Produce of UK”
 - Lot number
 - Best Before
 - Name of product “Honey”

Optional Items

- Granulation label on back
- Tamper evident seal on lid

Making Creamed Honey

- Using a Honey Creamer (potato masher)
 - Pound up and down for 20 mins (min) each day
 - Use honey which sets
 - When you get the consistency of beer shampoo it is ready to bottle.
- A quick method is to buy a jar of creamed and use that as a seed to jump start the process.
 - 50/50 mix of creamed to runny and build up volume.
- Keep back some seed for the next batch.

Cut Comb Honey

- Use a comb cutter to stamp out pieces
- Special containers are available
- Honey should be runny in comb not set

Chunk Honey

- Use Borage honey for the liquid as it doesn't set.
- If you use honey that sets you will have a short shelf life – once the honey sets you can't get back to chunk honey.

Wax

- To make 1lb of wax the bees require 10lb of honey.
- 1000,000 scales of wax make 1KG of wax
- Light wax is more valuable than dark wax
- Best wax comes from cappings
- Bees wax does not conduct heat well so it must be cooled slowly in moulds to preserve colour and avoid cracking
- Wax floats on water

Wax

- Young bees (12-18 days old) produce wax from 8 glands under their abdomen
- Wax melts at around 64C 147F the highest melting temp of any natural wax
- Wax should not be over heated (120c) will spoil wax
- Wax should be heated in a water bath
- Wax should only be melted in stainless steel, plastic, tin plated or aluminium containers.
- You can use a solar extractor to melt wax
- Wash wax by boiling in distilled/rain water - tie in jute bag with a weight
- Keep new wax (white) and old wax (brown/black) separate

Wax

- Don't melt wax containing fermented honey
 - Will carry odour
- Water emulsions
 - If milky appearance add oxalic acid 2-3g per kg of wax
 - If watery heat wax to 105 degrees to remove water
- Crumbly structure
 - Boil with oxalic acid
 - Use soft water

Getting the bees to make more wax

- Uncap honey frames and put them back
 - If there is a good flow the bees will re-cap it
 - Warning you may lose the honey if the bees need to eat it
- Use maximum number of frames in super
 - 11 is better than 9

Uses for Wax

- Candles
- Soap
- Skin Care Products
- Cosmetics
- Coatings for sweets and Pills
- Polishes
- Moulding
- lubricants
- Exchange for foundation
- Water proofing
- Seals
- Printing masks
- Crayons
- Skiing
- Surfing
- Bow strings
- Diving
- Chewing gum
- Cable lacing

Producing Bees

- Easy Method
 - Put a second brood chamber on the hive
 - When the comb is full of brood split the two boxes making up two hives, be sure that there are eggs in each brood box.
 - The box without the queen will then produce queen cells.
 - You can divide the up the frames of brood, food and queen cells to make up multiple Nuc boxes.

Producing Pollen

- Pollen can be collected and sold to health food shops.
- A trap is added to the entrance of the hive
- Fitting a trap may reduce brood expansion and could reduce honey crop.
- Pollen needs to be dried (Put on a tray in the green house) or frozen.
- Pollen needs to be collected daily

Uses of Pollen – Bee Bread

- Treating Allergies
- Used by Asthma sufferers to soothe inflammation
- Used as a Nutrition supplement
- Used to improve Athletic Performance

Producing Propolis – Bee Glue

- Use a Propolis screen (or Propolis grid) as a crown board
 - Sheet of polyethylene material with slots in
 - The bees plug up the gaps with propolis
 - Remove the screen and put it in the freezer
 - Flex the frozen screen to release the propolis segments

Uses from Propolis

- Fixing flint arrow heads onto shafts
- Use in violin making as a component of varnish
- It has antibiotic, antiseptic and antifungal properties and is used by followers of alternative medicine.

Royal Jelly

- Royal Jelly is the food given to larvae developing into a queen bee. It is a thick white liquid.
- It is secreted from hypopharyngeal gland in the heads of worker bees and some sugars and proteins are also added from the bees stomach.

Producing Royal Jelly

Basically we need to make a colony produce lots of queen cells and then harvest the Royal Jelly from the cells.

- Remove queen from a thriving colony
- Grafting larvae into wax cups fixed to a top bar.
- Insert bar into middle of brood nest
- 500g in six month per hive.
- Royal Jelly needs to be kept refrigerated or frozen.
- China, Taiwan and Thailand are the main countries producing it commercially.

About Royal Jelly

- Has a high vitamin, mineral and enzyme composition.
 - 67% water
 - 22 Amino acids
 - vitamins B5 & B6
 - 12.5% protein
 - 11% simple sugars
 - slight traces of Vitamin C

Uses for Royal Jelly

- Has several medical uses including Cancer treatments (Many unsubstantiated)
- Is used in cosmetics for moisturising
- Used as a health food

Bee Venom

- Early collection methods by milking bee
- Nowadays an electronic device is used annoy the bees and they sting a glass collector plate
- Plenty of hype for the uses in medicine
- A bee has 0.15 – 0.3 mg of venom in the venom sack
- 2.8 mg / kg is median lethal dose for an adult human.
- Venom is either frozen or dried.
- Price per gram is higher than gold

The End