Beeswax
*(Cera alba)*

A fundamental requirement of the colony
A colony without combs
Natural hexagonal formation
Natural hexagonal formation

http://thelazybfarm.com/hauling-hay
Physical force demonstration
Rolled tightly
Cut Through
For bees, beeswax is a multiuse, expensive, expendable product

- Home site
- Food storage
- Brood production
- Dance floor
- Pharmacy
- Wintering structure
- Communication device
- Ladder/scaffolding
Yet, all is abandoned if necessary
A natural nest

- Color range
- Rendered wax color
- Not combs all in use
- Old comb thickened
- Humidity control
- Old comb attractive
- Attractive to pests
- Bottom degraders
- Overall ecosystem
Wax foundation

Today, plastic inserts
One season comb
Seven season comb
Seven season comb magnified
Replace every 3-5 years

• Honestly, I rarely do
• I date frames as though I plan to...
• Becoming a bit cranky as years pass
• Comb replacement is work
• Science to support?
• However – weight increases
One beekeeper’s comb replacement technique

- Put old comb frames in a barrel
- Encourage wax moths
- Scrap webbing and residue
- Pressure wash (improvise a holder)
- Recoad with liquid beeswax

- Heat gun as needed
- Heating mats for wax coat leveling
- Disinfectants?
- Wax fate?
Whiting or Whitening
Wax production biology
Wax glands at work

https://queenbcandles.wordpress.com

https://www.bee-queen.com
Festooning

- Free hang forming a net
- Orients with gravity
- Allows for wax scale transfer
- Food and materials transfer
- Construction stability
- Mobility within hive
Propolis mix
Becomes blended with wax
Wax scales and cappings
Structural engineering

Beyond my expertise

- How long can a comb be without attachment?
- Propolis > comb strength?
- Caste cocoons?
- Natural life length?
- Attachment to feeder?
- In same plane
What’s up?
Beeswax particulars

- 10-18 days old
- Just before foraging
- Can partially revert
- Hive heat 91° – 97° F
- 1 # wax stores 22# honey
- 150,000 miles = 1# wax

- Value – 1.5-2.5% of honey
- Swarm takes 2# of honey
  - Enough for 5000 cells
- 100,000 - 200,000 per colony
Technical beeswax facts:

• Stable chemical makeup that essentially remains constant over time (usable wax found in ancient tombs)
• Chemical formula: C15 H31 CO2 C30 H61.
  • Made of 300 compounds
• Insoluble in water, density 0.958.
• Becomes brittle below 64.4 F.
• Becomes soft and pliable above 95 F to 104 F.
• Melting point - 149 F.
• Flash Point - 400 F.
Beeswax rendering
Slumgum
Bulk rendered beeswax

- Made stable
- No standard size or weight
- Mostly clean, but not enough
- Pleasant smell
- Color graded
Common beeswax uses

- Candles
- Polishes
- Candy coatings
- Lubricants
- Medicines
- Sewing
- Ammo
- Modeling
- Leather workers
- Archers’ bows
- woodworking
- Sail and shoe making
- Crayons
- Food coverings
- Key making molds
- Soap making
- Horse hooves
- Dentistry
- Poultry waxes
- Art work
- ............. On and on
Wax bloom

http://www.honeyrunfarm.com/honeyrunfarm
Wax moths
Beeswax – new and old
Thanks for listening and interacting.

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And
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