



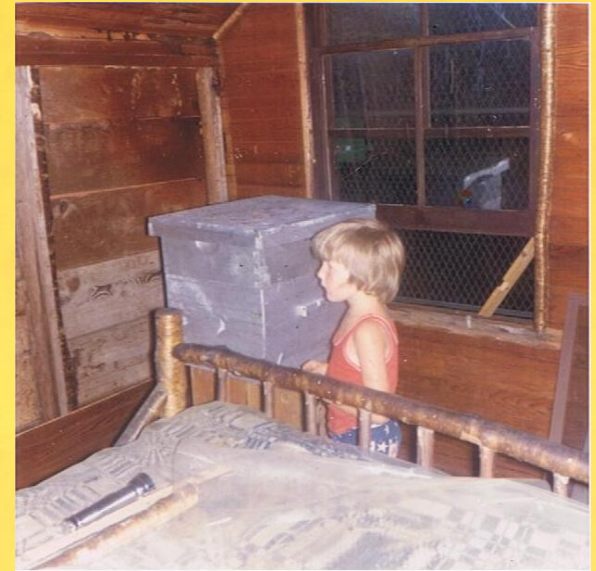
Small Scale Queen Rearing

Rob Overton

www.BushkillFarms.com

About me

- Involved in beekeeping for 30+years
- Enjoy building equipment and experimenting
- Focused on soft-chemical/chemical-free beekeeping for ~10 yrs
- Last 5 years have focused on feral and survivor stock
- Administrator and technical guy behind Beemaster.com



John Burroughs' Slabsides
1974

Why raise your own queens?

- Quality
- Availability
- Cost
- Hygienic Behavior
- Acclimation



Quality

- Productive life span of commercial queens has decreased
- You choose the traits you are looking for, not a commercial breeder who has no stake in the queens performance
- No banking or shipping stress
- You can take time and do things a commercial breeder can not

Time = Money



Availability

- Often times queens are not available when you need them, so you settle on “any” queen you can get
- If you have queens on hand there is no delay in dealing with your situation



Cost

- Supply vs. Demand
- Shipping & insurance
- It is common to pay \$20-\$25, or even more



Hygienic Behavior

- Hygienic bees are more resistant to mites and diseases
- Starting to see more queen breeders breeding for hygienic behavior - most still do not
- Hygienic breeding is well within the scope for hobbyist



Acclimatized

- Bee from the South don't winter as well as Northern breed bees
- Wintering bees might be the hardest part in the North, why put yourself at a disadvantage with Southern queens?
- Local acclimated bees are best



Other Things to Consider

- Africanized genes
 - Why risk bringing them North
- Small Hive Beetles
 - Less likely to get them with queens than with packages or nuc



Beedata.com



kanawhavalleybeekeepers.com

Why Bees Rear Queens

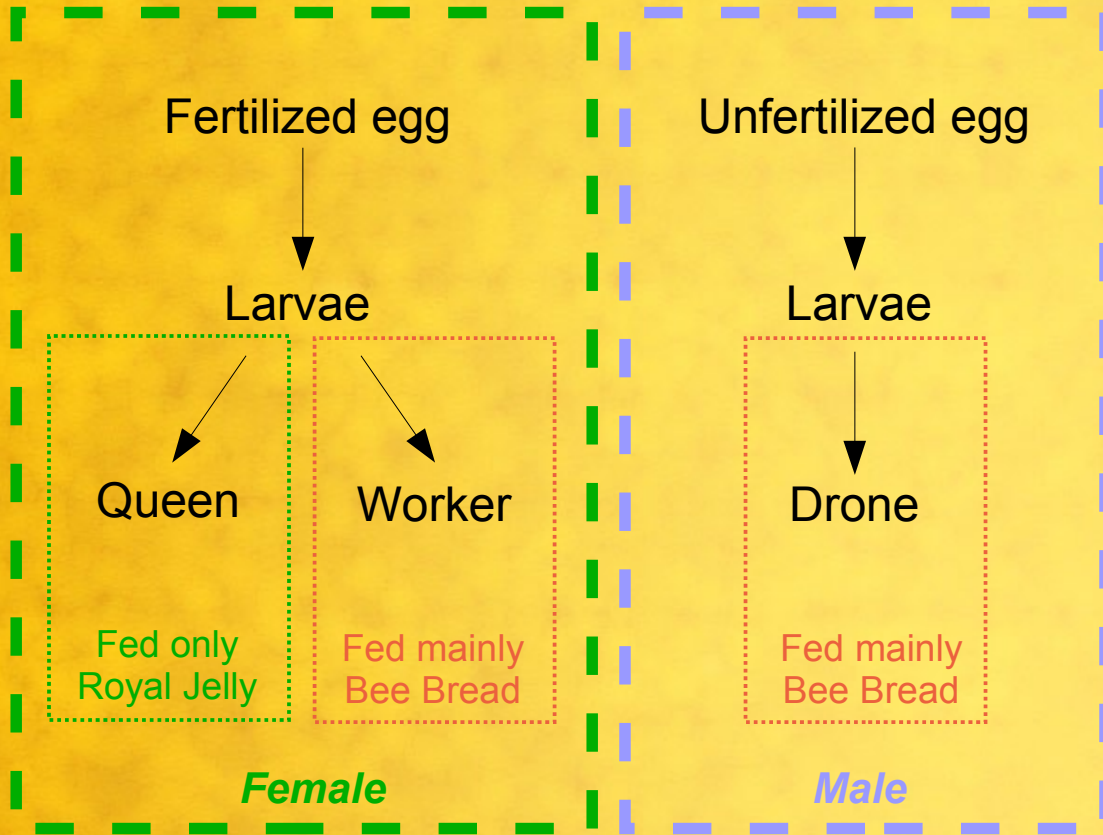
- Emergency – Queen suddenly dies or killed
 - Do the bees have sufficient resources
 - Quality of replacement questionable
- Supersede – Bees unhappy with Queens
 - Can quality be guaranteed when raised from a failing queen?
- Swarm – Strong colony ready to swarm
 - Strong colony with plenty of resources to breed quality queen



Why not just remove the queen or make a queen-less split and let them raise their own?

- Resources
 - Takes a lot of resources to make and support queen cells
 - Get as many queens as you can for the effort
- Emergency queens may lack quality
 - Proper age of larvae
 - Sufficient resources to feed larvae well
- By controlling the process, we can raise better queens and produce more.

What makes a queen?



Methods to Rear Queens

- Grafting – Takes good eye sight and dexterity, more queens in less time.
- No Grafting – No moving larvae, more steps, timing critical.
 - Kits with movable cell cups (Jenter, Nicot, etc.)
 - Various methods of comb manipulation
 - Cheapest, but requires cutting and mounting of finished cells

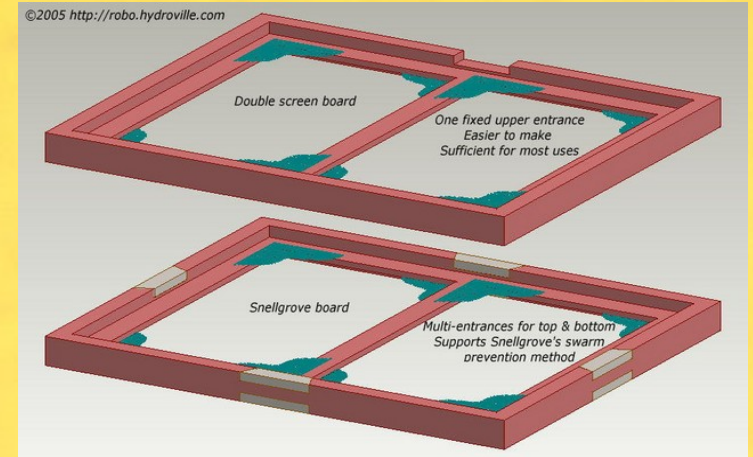


Methodology

- Select donor queen for eggs
- Provide eggs to a queen-less cell builder
- Move cells to queen-right cell finisher
- Move ripe cells to mating nucs

Equipment

- No Graft Kit
- Double Screen Board (Snellgrove)
- Or
- Cloake Board
- Mating Nucs

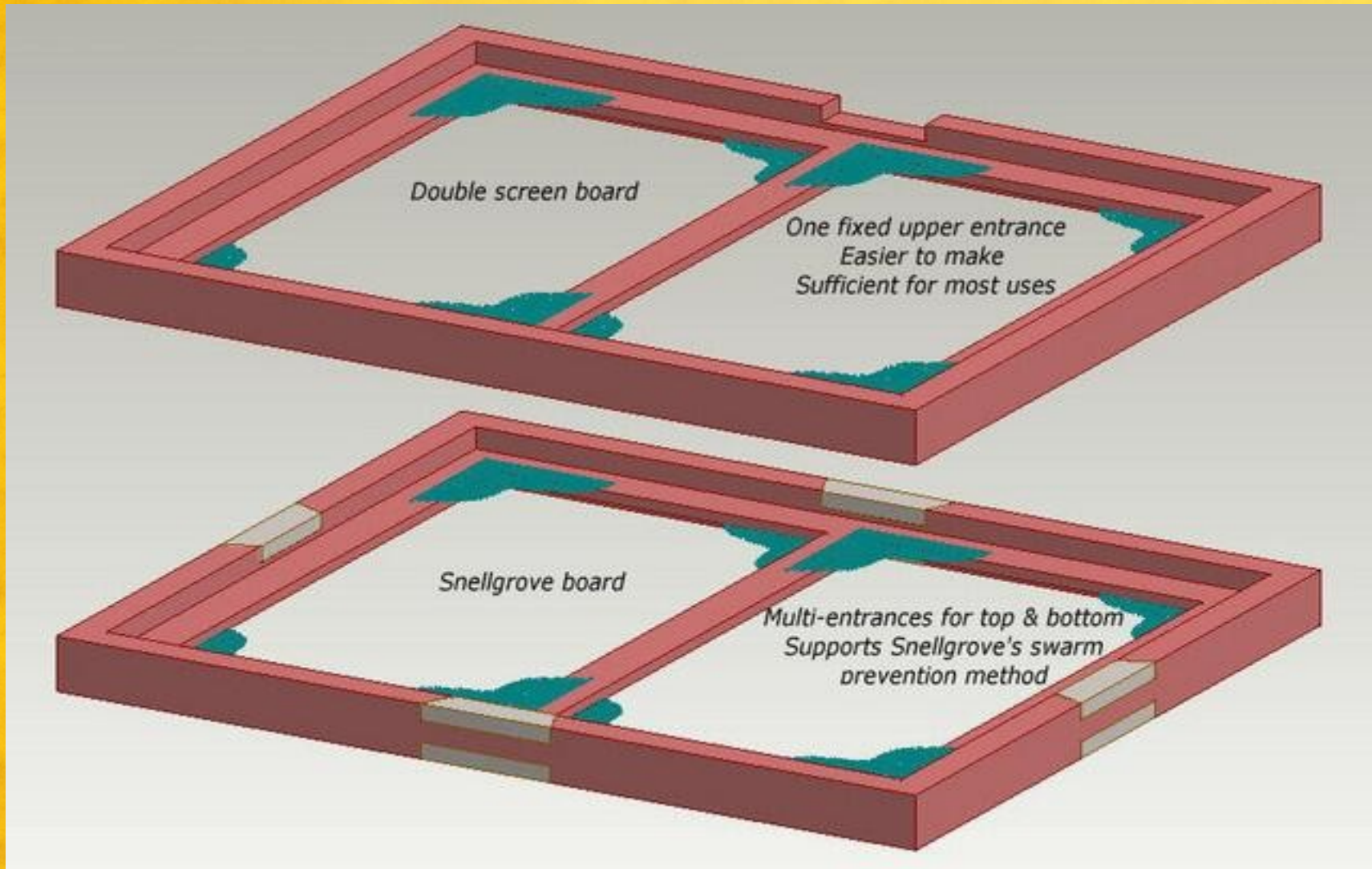


No Graft Kit

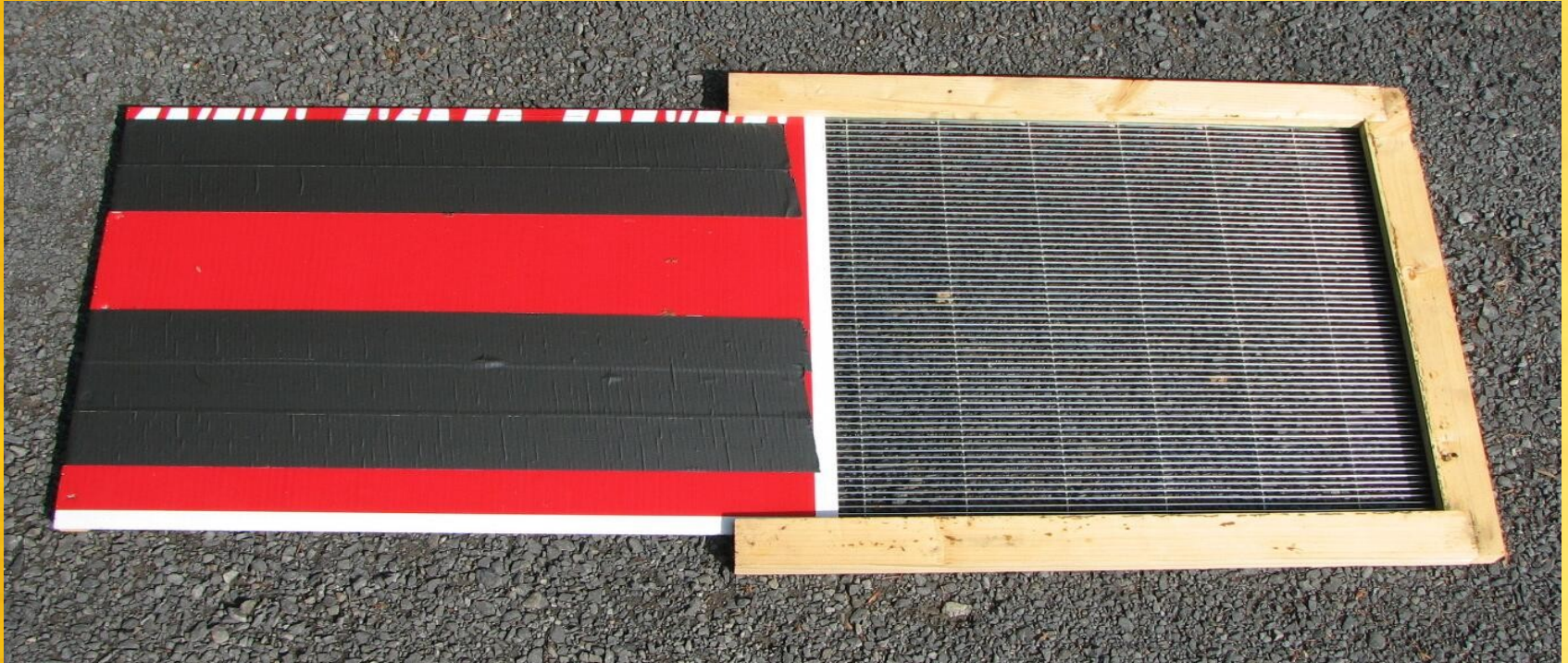
- Mother queen is restricted to laying box that has removable cell cups.
- Once eggs hatch, cell cups are moved to rearing frame.
- Same as hand grafting from this point.
- Has **critical** steps to have any success.



Double Screen Board



Cloake Board



- Queen Excluder in an entrance shim with removable floor
- Less manipulation required

Mating nucs



Rearing Calendar

- Timing is crucial to success.
- Calendar to keep you on course.

Calendar available at:

robo.bushkillfarms.com/downloads/

Queen Rearing Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			18 (A)	19 (B)	20 (C)	21 D
22 (E)	23 (F)	24 G	25 (H)	26 I	27 J	28 K
29 L	30 M	1 (N)	2 (O)	3 P	4 Q	5

- A) Assemble laying box with cells cups and install in middle of brood chamber without queen excluder. (24hr cell cup cleaning)
- B) Install excluder on laying box and place queen in unit. Return to center of brood chamber.
- C) Check for eggs in cell cups. Remove queen excluder and return to center of brood chamber.
- D) Wait
- E) Set up cell builder with queen and one frame of brood in bottom box and entrance turned 180 degrees. Install Cloake board with floor in place (or double screen board & queen excluder). On top of Cloake board arrange frames as follows.
nectar-brood-brood-pollen-eggs-cell bar-eggs-pollen-brood-nectar
- F) Remove cell cups from laying box and place in cell bar. Return cell bar to cell builder with a frame of foundation. Invert feed jar over inner cover.
- G) Wait
- H) Remove floor from Cloake board (or double screen board).
- I) - M) Wait
- N) Set up mating nucs if needed.
- O) Move cells to mating nucs or install roller cages.
- P) Wait
- Q) Queens hatch (may be a day early/late depending on weather)

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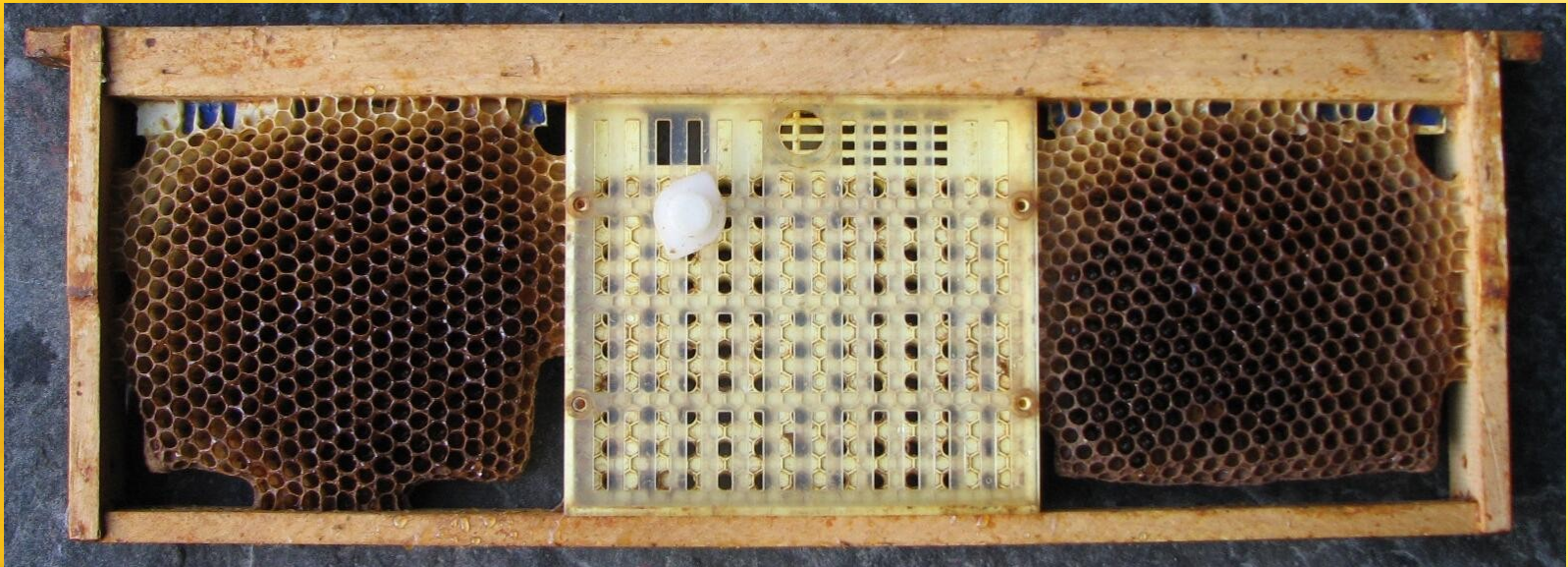
No Graft - Day 1

- Before you start, select mother queen.
- If you do not have a flexible schedule, you can work backwards from the queen calendar to determine a start date.
- Load cell cups into laying box.
- With excluder removed from laying box, place it in center of brood area of mother queen colony 24hrs before restricting queen.
 - Bees will clean/polish cells so queen will lay in them.
 - More than 24hrs and bees may store nectar in cell cups.



No Graft - Day 2

- Install excluder on laying box.
- Confine Queen to laying box.
- Place laying box in middle of brood chamber.



No Graft - Day 3

- Check for eggs in cell cups.
- Remove excluder to release queen.
- Place back into the center of brood nest.
 - If inverted and moved to cell starter now, bees will remove eggs.



No Graft - Day 5

Set up cell builder (Cloake Board)

Start with a strong, well populated
hive



No Graft - Day 5

Set up cell builder (Cloake Board)

Turn bottom board 180 degrees

Put queen with one frame of brood with bees in bottom box

Fill remainder of bottom box with extra frames with no bees



No Graft - Day 5

Set up cell builder (Cloake Board)

Fill second box with extra frames
with no bees



No Graft - Day 5

Set up cell builder (Cloake Board)

Place Cloake board with entrance facing forward and floor in place



No Graft - Day 5

Set up cell builder (Cloake Board)

In the third box place cell cup holder in the middle

Then place eggs and uncapped brood on both sides

Next place pollen

And finally honey and nectar on the outsides

Place as many bees as possible in this box



No Graft - Day 5

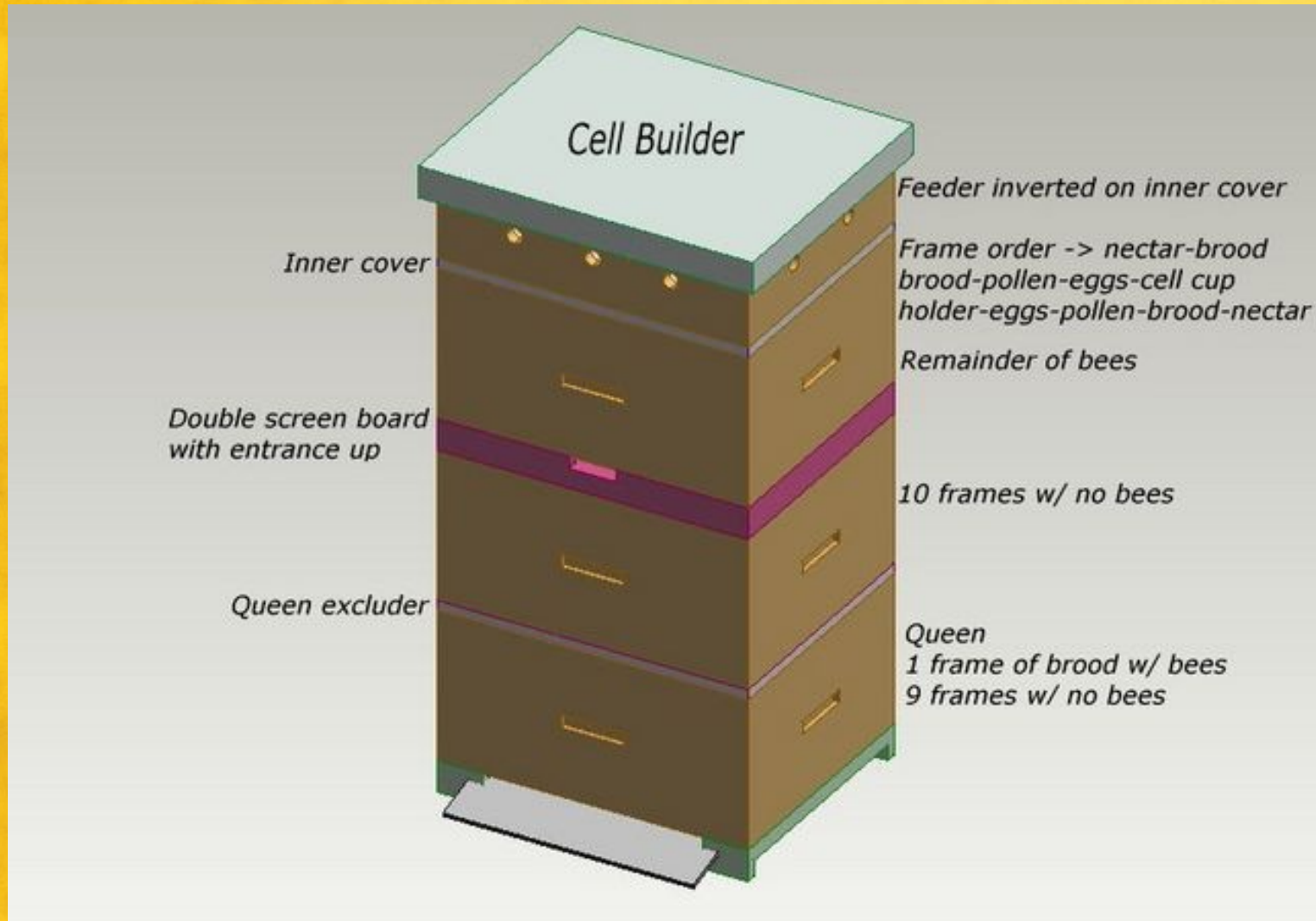
Set up cell builder (Cloake Board)

Cover and let stand for 24 hours



No Graft - Day 5

Double Screen board method



No Graft - Day 6

- Remove laying box and remove back cover
- Carefully remove cell cups with eggs and place in cell bar rearing frame
 - Do this in the shade and keep cell bar covered with towel so larvae doesn't dry out
- Place rearing frame in cell builder



No Graft - Day 6 - Continued

- Feed – inverted jar with vent box or empty super makes future manipulations easier
- Give a frame of foundation or empty frame to reduce comb building on cells



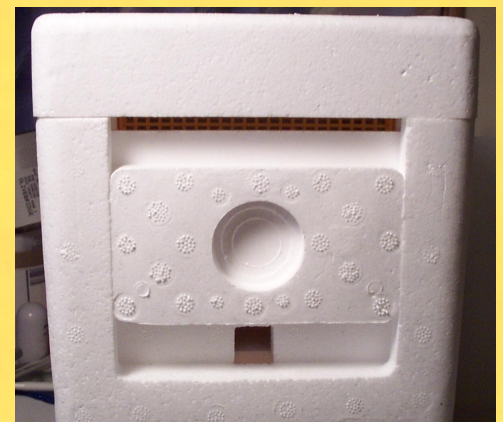
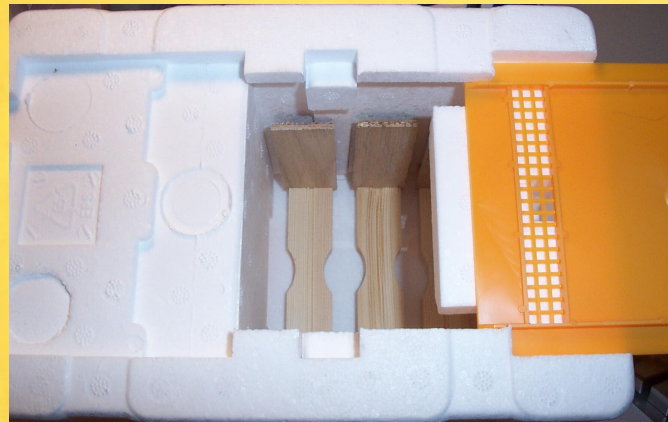
No Graft - Day 8

- Remove Cloake board floor or double screen board
- Turns queen-less cell starter into queen-right cell finisher



No Graft - Day 15

- Set up mating nuc or hives to be re-queened
- Queen-less at least overnight will make them ready for queen cells
- 1 frame of capped brood
- 1 frame of nectar or honey and pollen



No Graft - Day 16

- Move queen cells to mating nucs or install roller cages.
- In hot weather, queens may emerge a day earlier, so you may want to consider moving this up a day



No Graft - Day 17

- Virgin queens emerge.



Then What?

- Wait a few days and verify queen hatched
 - Disturb as little as possible
- Wait 2 weeks and check for laying queen
- Mark your laying queen
 - If you don't mark, you may not know when your queen swarms or is superseded

Marking Queens

- Easily done with paint pen
- Practice on drones
- Video available at:
<http://robo.bushkillfarms.com/queen-marking>

Color	Year ending in
white	1 & 6
yellow	2 & 7
red	3 & 8
green	4 & 9
blue	5 & 0



Web Resources



- Beemaster's International Beekeeping Forum

- Commercial & Ad Free - Moderated, Family Oriented - Geared toward Hobbyist beekeepers
- 4000 members Worldwide - 275,000+ posts - 30,000+ topics - Nightly voice chat



- My blog

- <http://robo.bushkillfarms.com> - Trials and tribulations of a hobby beekeeper!



- Learning, Educating & Sharing With The Nuisance Wildlife Control Industry

- <http://thewildlifepro.net> - Has a dedicated beekeeping forum