Kentucky Queen Bee Breeders Association
December 2nd, 2017

Queen Rearing/Breeding

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Queen Rearing vs Queen Breeding

Queen Rearing:

- Raising good queens to use ourselves
- Maybe sell some queens
- Using swarm cells or raising queens from natural queen cells
- Grafting from any queen you might have

Queen Breeding:

- Developing queens with desirable characteristics and improve genetics
  - Increase honey production
  - Overwintering ability
  - Disease resistance
  - Resistant to varroa mites
- Laborious work to produce better bees
- Open mating
- Instrumental Insemination

Why is Queen Rearing/Breeding Important

- Queen Quality
- Old Queens
- Mean or Defensive Bees
- Queenless Hives
- Drone Laying Queens
- Laying Workers
- Supersedure of Queens

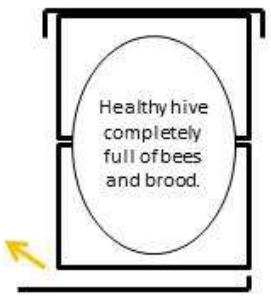
Queen rearing challenges in KY

- Weather
- Short queen rearing season (April-August)
- Resource Intensive
- TIME / SPECIFIC SCHEDULE (my issue)
- Hard to establish a commercial queen business

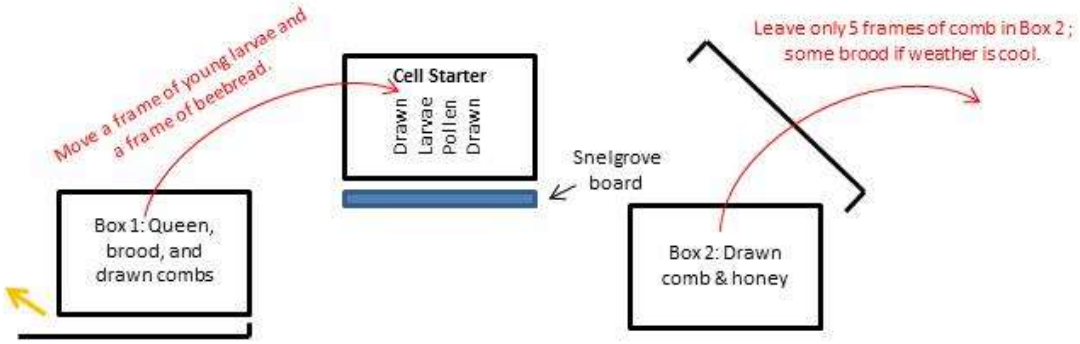
Selecting Queen Stock

- My selection criteria
  - Queens must be of the top 4-5 honey producing hives from previous year
  - Queens must overwinter very strong
  - Queens must buildup rapidly in the spring
  - Hive has had low mite counts previous year
  - Overall health and strength of the hive from previous year and winter taken into consideration
  - From a genetic line of previous top selected queens

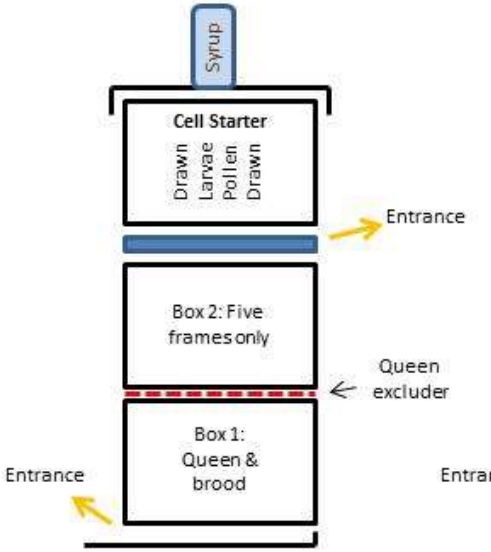
Cell Builders and Finishers



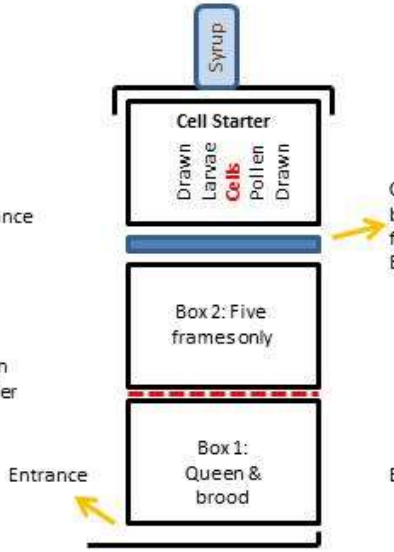
Step 1: Start with a very strong queenright hive.



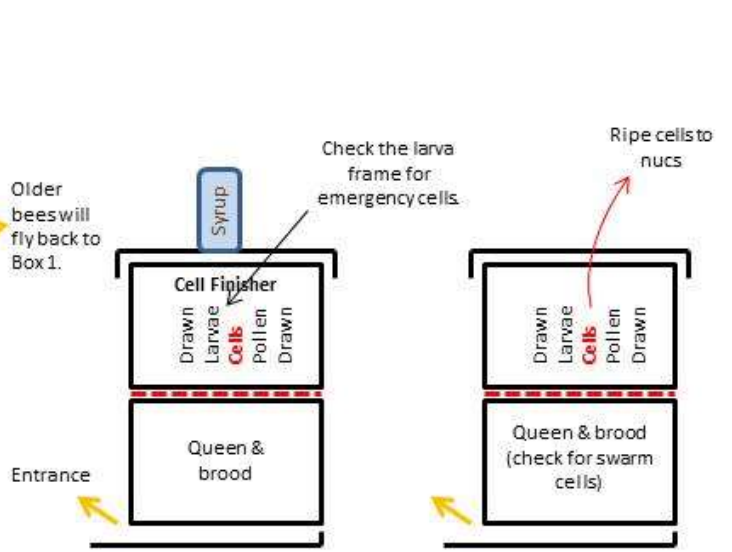
Step 2: Divide the hive up to make a 4-frame queenless cell starter. If sunny, shake all the bees into the starter box and allow the older bees to return home below; otherwise leave enough bees below to cover the brood. Drawn comb is for syrup/nectar storage.



Step 3: Reassemble with a queen excluder and a Snelgrove-type board. Feed syrup and leave alone for a few hours; nurse bees will stay above.



Step 4: Add ~50 grafted cells in a cell bar frame. This is now a free-flying "modified swarm box" cell starter.



Step 5: After 24 hrs, spread the frames in Box 2 and drop the cell starter. This is now a queenright cell finisher.

Step 6: On Day 11 after grafting, remove the nearly ripe cells to nucs. You can now repeat from Step 2.

Nuc cell builder/finisher

- Nuc cell builder and finisher advantages
  - Good system for small to medium size queen producer
  - Easier to manage than a 3 story 10 frame system
  - Can setup multiple cell builder/finishers
  - Some hives do better than others at cell building and we continue to use only the best
  - Do 40 grafts max per builder
  - Quality of the cell builder always beats the quantity of one
    - Big doesn’t always equal better

Setting up nuc cell builder/finisher

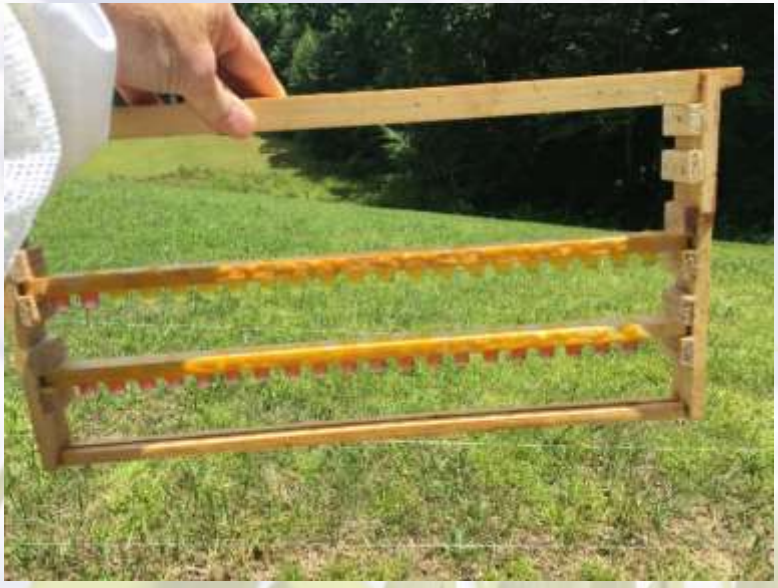
- Start with super strong 3 box nuc
- Nuc selected should have been feed for several days with syrup and protein patties
- Put queen in bottom box with 4 frames capped brood, 1 frame honey. Leave enough bees to take care of queen and brood.
- Starter box has: (In this order left to right) with adjoining bees
  - Frame honey
  - Frame pollen
  - Middle space left open for grafts
  - One frame half capped with other half larva (larva towards grafts)
  - One frame capped brood

Setting up nuc cell builder/finisher

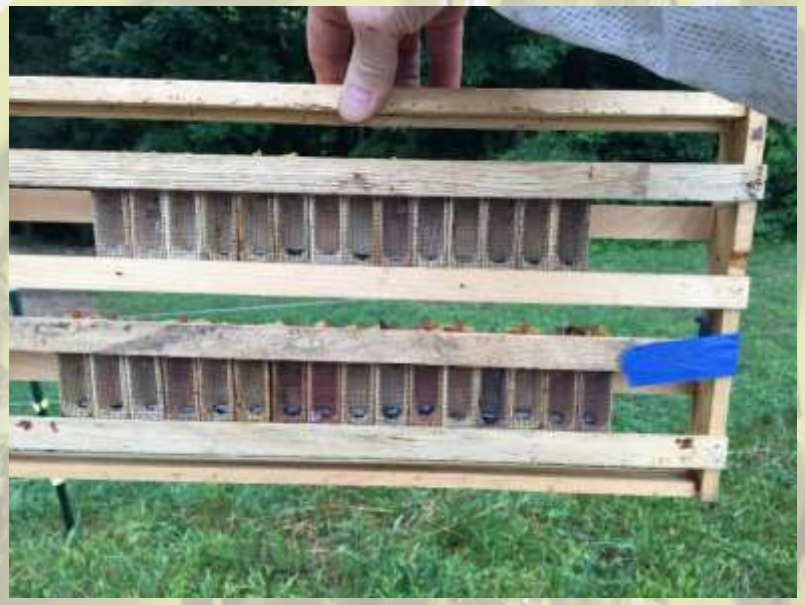
Setting up nuc cell builder/finisher

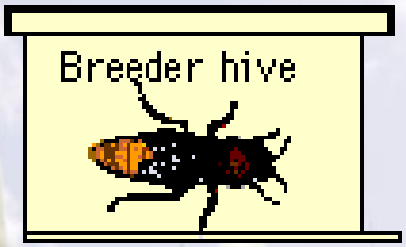
- 4” vent spacer on bottom starter box and a 2” vent space on top of starter (keep them from overheating)
- Starter box has a divider board on bottom on 4”spacer
- Shake 3-4 frames of nurse bees in starter
- Close it up, put quart syrup on top, protein patty on top frames and let it settle down about 3-4 hours
- Place remaining frames into other hives
- After 3-4 hours place grafts in middle opening
- After 24-36 hours remove dividing board and 4” spacer and replace with queen excluder
- I keep syrup and protein patty on for 4-5 days
- Place cells in cages on day 9 and place back in middle position

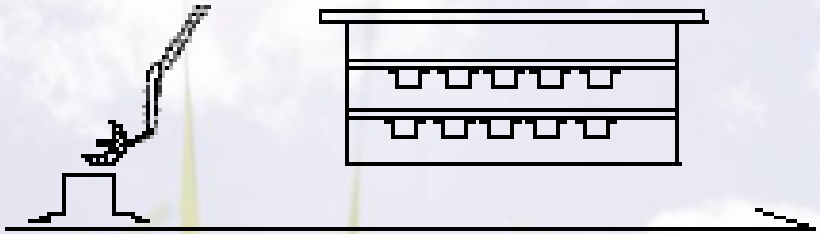
Queen cells

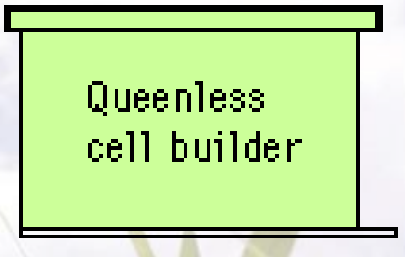


Queen cells

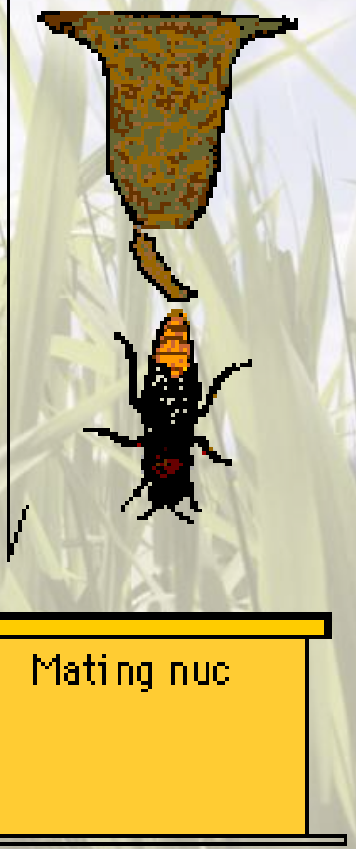








1 Breeder lays eggs	2	3 Eggs hatch	4 Larva grafted Into cell builder	5	6	7
8 Cells are sealed	9	10	11	12	13	14 Out builder In mating nuc
15	16 Cells hatch	17	18	19	20	21
22 Queen mates	23	24	25	26	27 Queen begins laying	28
29	30	31				



Using queen cells and virgin queens

- Place queen cells in nucs or queen boxes on day 10
- We place cells in cell protectors and two cells if possible but one is used also
- If we have virgins that are less than 8-10 hrs old we directly release them into nucs or queen boxes
- Our nucs are usually made up the same day as we are installing cells. This allows for high acceptance of direct release of virgin queens.
- Nucs are usually two frames of brood and one frame honey, two frames foundation. Extra nurse bees are added if necessary.
- If virgin queens are older than 10 hrs we place them in a queen cage and do a 3 day delayed release
- We do not use virgins older than 3 days

Using queen cells and virgin queens

Purdue Instrumental Insemination Queen

Four section mini medium queen rearing box

Overwintering combs of four section box

Two or three section deep queen rearing box

Two section medium queen rearing box

Making Nucs

This is what we are looking for

Evaluating new queens

- Wait 3 weeks after queen starts laying to evaluate
- We like to see physically large queens
- She must be a prolific egg layer
- We want to see solid full brood patterns developing

Queen Introduction

Honey Bee Nutrition and Feeding

- Maybe the most important thing to learn and understand about bees is nutrition and feeding
- **Winter feeding should never be considered emergency feed**
- Winter is not a survival time, just another phase in beekeeping.
- December thru March I use sugar blocks and sugar/protein blocks on top frames in 3” spacer
    - I check them every 14 days and replenish as necessary
    - This allows their natural reserves to be available for rapid spring buildup
- **I am a firm believer of providing protein all winter**
- You must have rapid spring buildup required for good honey production
- **Number one reason for weak honey crop is the bees build up on the flow**
- Start feeding 1:1 syrup mid February until honey flow begins
- Start Feeding Protein Patties mid February until honey flow begins
- KY has an August dearth in lots of areas
    - Little pollen or nectar
    - Bees stop raising brood
    - Bees don’t build up for winter

Feeding

Better be prepared to feed hives like this in winter

Feeding


25

This is the desired results of our work

Strong honey hives headed up by great queens

Bee Culture
The Magazine of American Beekeeping

JANUARY 23, 2017

A "NET GAIN" CELL BUILDING SYSTEM

By: Joe Latshaw

Not how big, but how small can a cell building colony be and still do a good job?