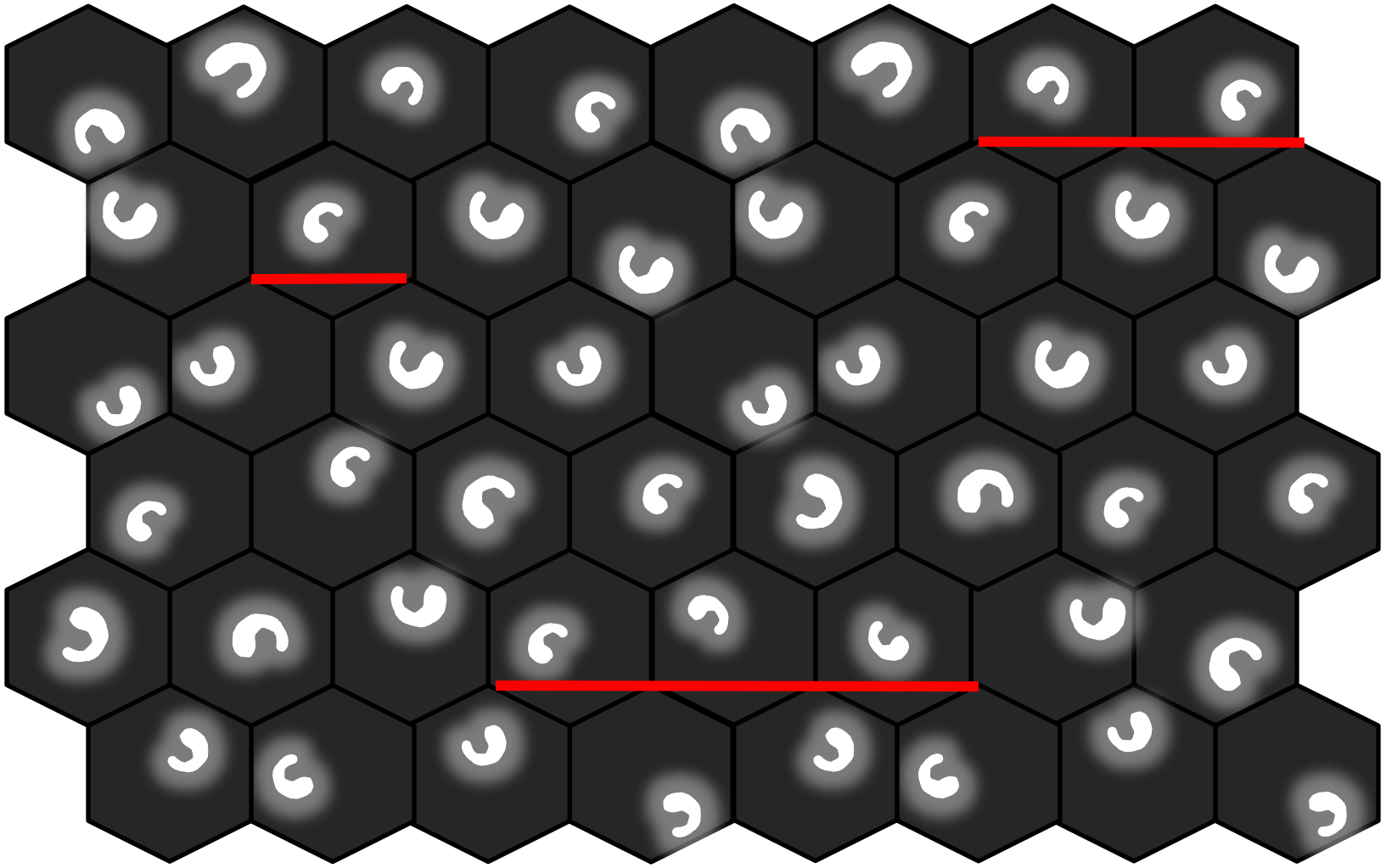
OTS

STEP 3: NOTCH CLEAN TO THE MIDRIB, REMOVING THE BOTTOM THIRD OF THE CELL WALL

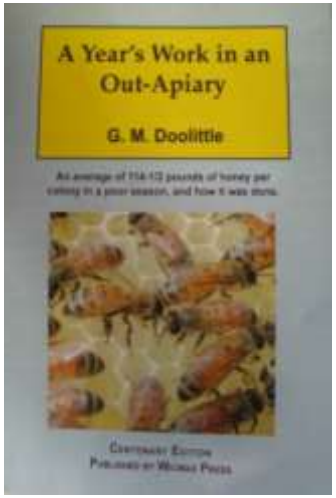
OTS: CHOOSE ONE OR MORE 36-HOUR-OR-YOUNGER LARVAE AND BREAK CELL WALL BENEATH IT



***SEVEN DAYS LATER*: SEALED QUEEN CELLS**

DOOLITTLE'S 43RD PARALLEL TIMELINE

Introduction



In Doolittle's book, "A Year's Work in an Out-Apiary", he gives us directions for how to produce the most section comb honey but this information can also be used for honey production and/or rearing new colony starts

He planned for the next season as he would go into winter with a "reserve pile" of combs that he sealed off so no mice nor bees could get in. This reserve pile consisted of at least 70 deep frames of honey (7 lbs each) and other drawn comb as they came off the bees in the fall. Doolittle wintered in single deeps in a cellar. He lived on the 43rd parallel so this is an excellent guideline for bees kept on or near the 43rd parallel and can also be a guideline for other latitudes if adjustments are made according to honey flows and other microclimatic aspects

DOOLITTLE'S 43RD PARALLEL TIMELINE (II)

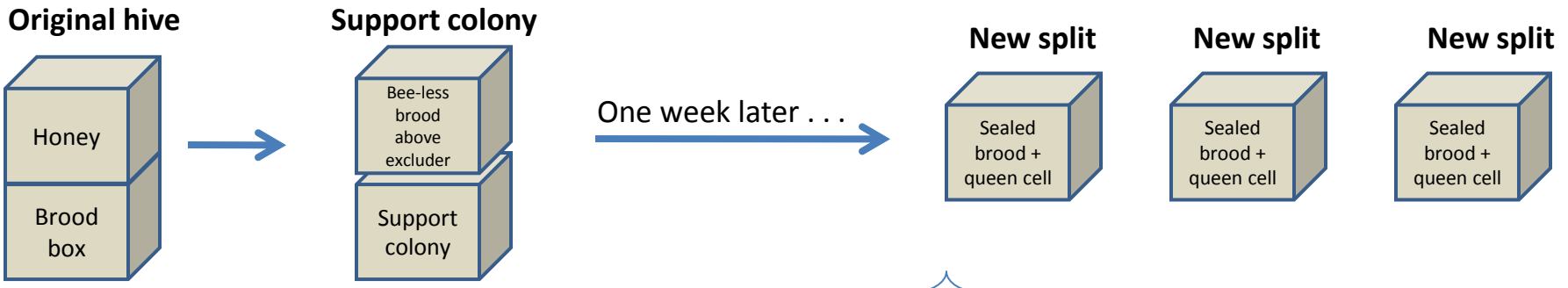
1st visit April 14th, 1905 (Doolittle's 60th birthday)	• Took bees out of cellar and placed on location • After bees settled down he placed a reserve bottom board with 3/8" side up on the location • He then placed the hive on the clean bottom and gave them 2 frames of honey from the reserve pile • He cleaned the first bottom board, turned it over, and used it for the next hive, and so on until all done • Reduced all entrances, 3" for strong, 2" for medium and ¾" for weak
2nd visit April 24th, 1905	• All bees had or were given from the reserve pile 20 pounds of honey • Entrances increased to 5" for strong, 1 ½ " for weak • If a queen had scattered brood and lots of bees, she was killed and then hive was united with a weak hive • Supersede queens in the fall (July or when sections were taken off) solved most of these problems
3rd visit May 20th, 1905	• Find all queens and clip one wing to prevent swarming until next visit • Exchange brood from hives with 8 frames to hives with 6 frames so all producing hives have 7 frames of brood • Brood rearing has been going on for a month and some queens have produced 8 frames of brood (when taken out of cellar the bees have no brood and that is why they are behind outdoor wintered hives on the 43rd parallel) • Doolittle has 13 strong hives and 6 weak hives. The 13 strong now with 7 frames of brood and 2 honey frames on the sides. These are taken out and the bees shook in front of the hive to make sure the queen is not on them. A hive is taken from the reserve pile and 2 empty frames are placed in the brood box replacing the 2 honey frames taken out to give the queen room to lay. The 2 honey frames are placed in the other box with the 8 frames remaining on the 3rd and 8th position. An excluder is placed on the brood box and this honey super is placed above this. This makes the hives "rich in stores and there is no retrenching." • All of Doolittle's previous writings are of no use when working in an out-apiary

DOOLITTLE'S 43RD PARALLEL TIMELINE (III)

4th visit June 16th, 1905	• Of the 13 supered on May 20, there are 50 lbs of honey now in the top supers. Go to hive #1 and place the honey super on a temporary empty box and move the hive aside. Place a new bottom board on the original location and place the honey super on this. Remove a center honey frame and go to one of the weak hives and get a frame of brood ¼ to 1/3 full. Shake the bees off and place the bee-less brood in the empty place in the honey super and give the weak hive the honey frame • Place the section box with the bait section on the hive and another section box above this and close the hive • Now shake all the bees off the brood in front of the hive so they run in and take care of the brood and the queen can now lay in the empty cell on the brood frame • Bring the super of bee-less brood to one of the weak hives and place above an excluder to care for them (because it is warm this time of year and that brood is emerging so this hive is able to care for this brood and also additional bee-less brood supers • Continue until all 13 have been shooked (artificially swarmed) • The bees now will remove the honey in the bottom super and place it in the section supers. This will give the queen more room to lay. Nectar is also coming in and will be placed in the comb section supers • Note: 1 hive of the 13 (his best hive was starting swarm cells) was now shook very gently as not to disturb the newly started cells. Only this one super of bee-less brood with the started cells are given to the strongest weak colony above an excluder for the bees to finish the cells • Now that leaves 12 supers of bee-less brood to go on the other 5 weaker colonies to care for (2 or 3 supers of bee-less brood each)
5th visit June 26th, 1905	• Queen cells are sealed on 6 of 10 frames. He cuts off and inserts cells on 3 more frames to make 9 new hives • Doolittle exchanges a frame of brood for a frame with a cell in 9 of the supers of brood on the 5 supporting hives • Dolittle makes 9 new colonies by giving them a bottom board and cover. He can keep them in the same yard because all the brood is sealed and there is no stress on the new start • Doolittle makes 3 more comb section producing hives from the six original weak hives left • Doolittle places all the rest of the reserve supers on the remaining 3 weak hives and the 9 new ones he just made • These will be the reserve combs for next year

Note: The rest of the book has to do with harvesting comb honey and is not as directed towards bee behavior and instincts that are important to the OTS system of queen rearing. The OTS system modifies these fundamentals to rear quality queen cells within an enhancement of Dr. C.C. Miller's frame to then produce new honeybee colony starts that don't have any "open brood" in the same yard

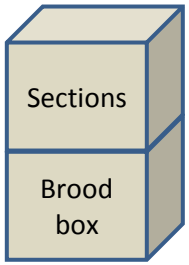
DOOLITTLE'S APPROACH TO MAKING SPLITS



Doolittle gave the bee-less brood to a support colony above an excluder (as explained in chapter 4 of his book). One week later he would remove the brood box which would then have all sealed brood and place it in the same yard and give it a cell that he raised by grafting in a full-strength cell builder. The split would work because there were enough bees that stayed with the split and there was no stress because all the brood was sealed and the cell was already produced

Honey frames + bees + 1/3 brood frame + old queen

Section hive



Doolittle put honey frames into the brood nest and then shook all the bees into it. He then added a brood frame that was about one-third full along with the old queen. Next, he put on sections with a bait section so that the bees would move all the honey that was in the brood nest into the sections (bees will not tolerate honey in the brood nest). The one-third frame of brood would hold the queen and give her room to lay so that she would not swarm

MEL'S APPROACH = OTS + DOOLITTLE'S APPROACH

Spring

Original hive

Eight frames of brood

Artificial Swarm

Move two miles

Old queen + two frames of brood

Replacement Bees

Two-brood frame start + old queen

Bees stay put to seal brood

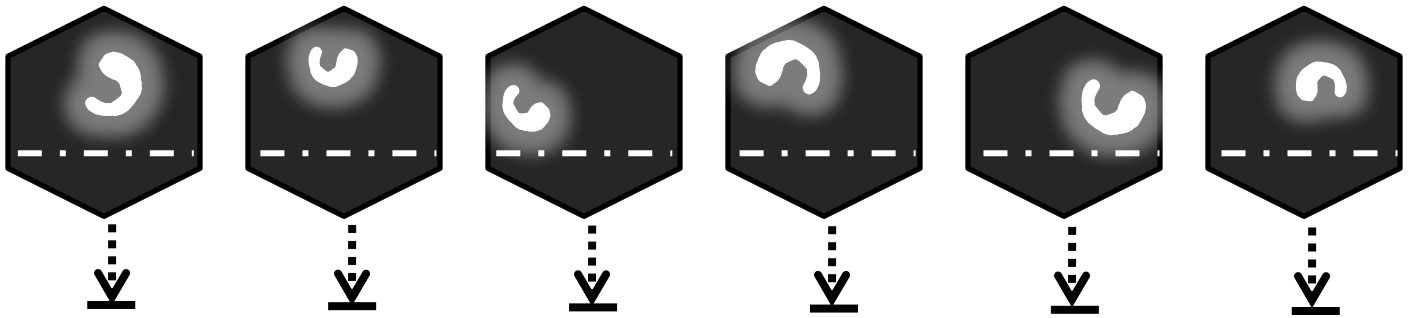
Cell Builder

Six-brood-frame cell builder

Notch

Artificial Supersedure

Frame 1 **Frame 2** **Frame 3** **Frame 4** **Frame 5** **Frame 6**



One week later

√ Queen cell raised

√ Brood sealed

√ No stress

Same yard

Two-brood frame start

Two-brood frame start

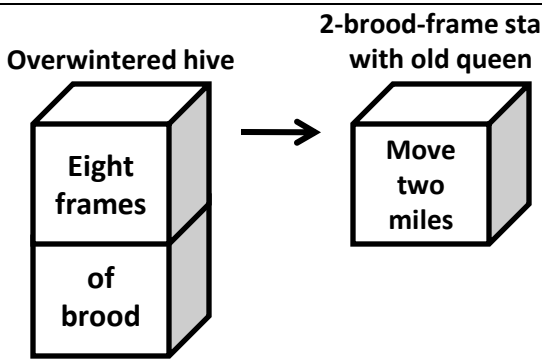
Two-brood frame start

MEL'S MODULE: HEALTHY, RAPID, POPULATION EXPANSION IN 3 EASY STEPS

Sealed Brood, Same Yard, Successful Queens

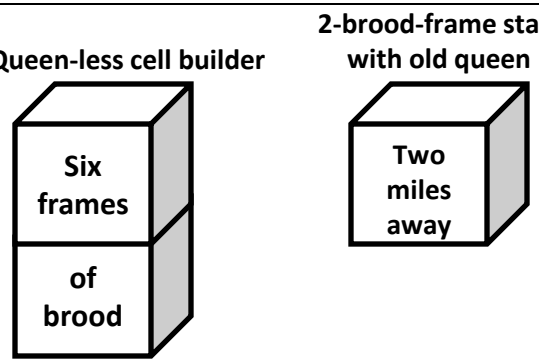
Step 1

Remove overwintered queen with 2 brood frames (to serve as future increase)



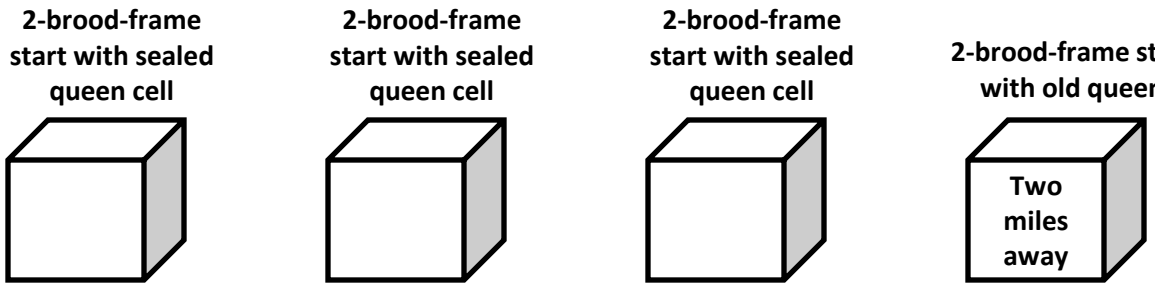
Step 2

Notch 36-hour-or-younger larvae on six different frames in queen-less cell builder

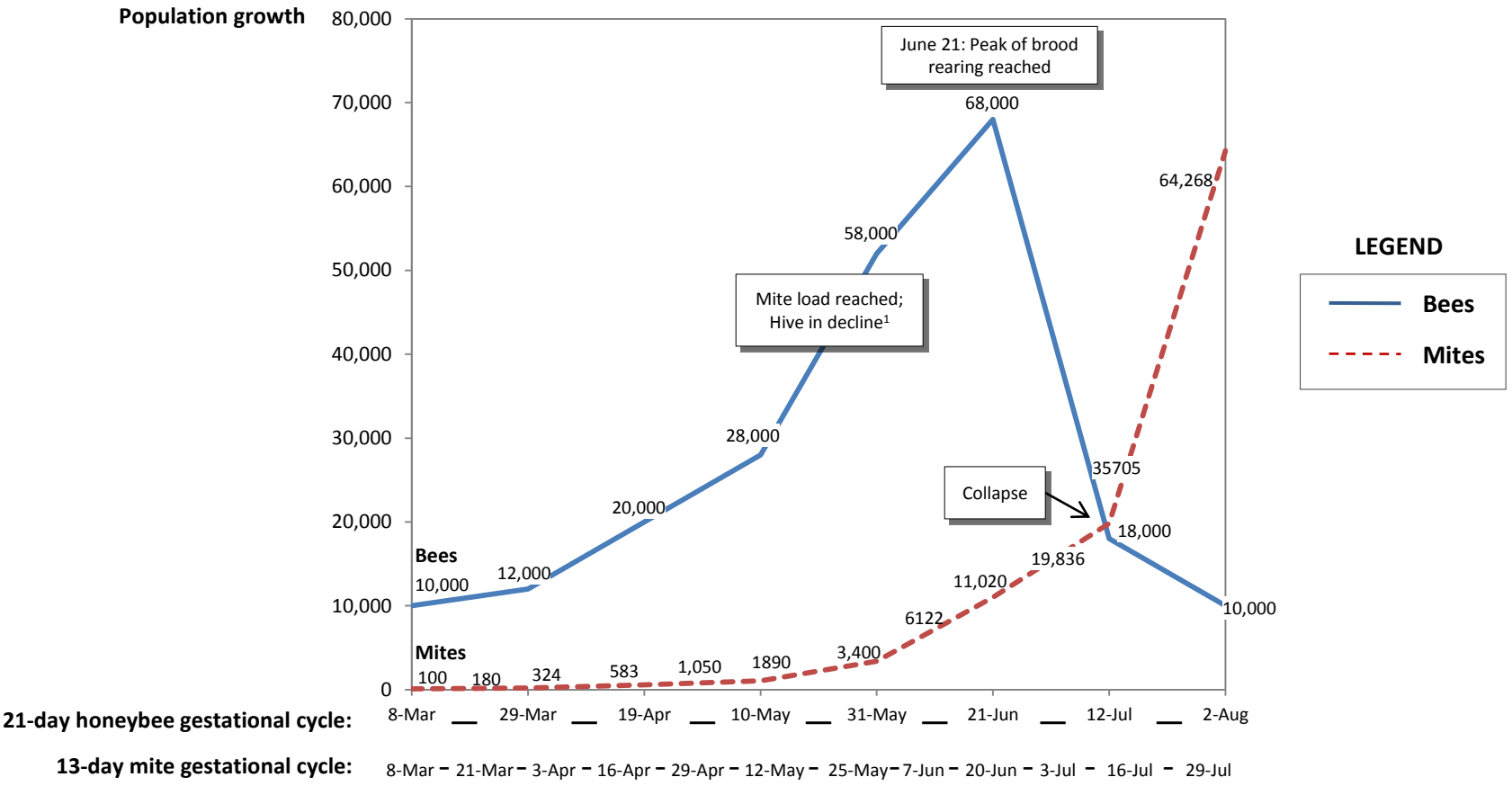


Step 3

***One week later*: check cell builder for sealed queen cells on notched frames and make 2-brood-frame starts utilizing queen-celled frames. Destroy excess queen cells to prevent mini-swarms**



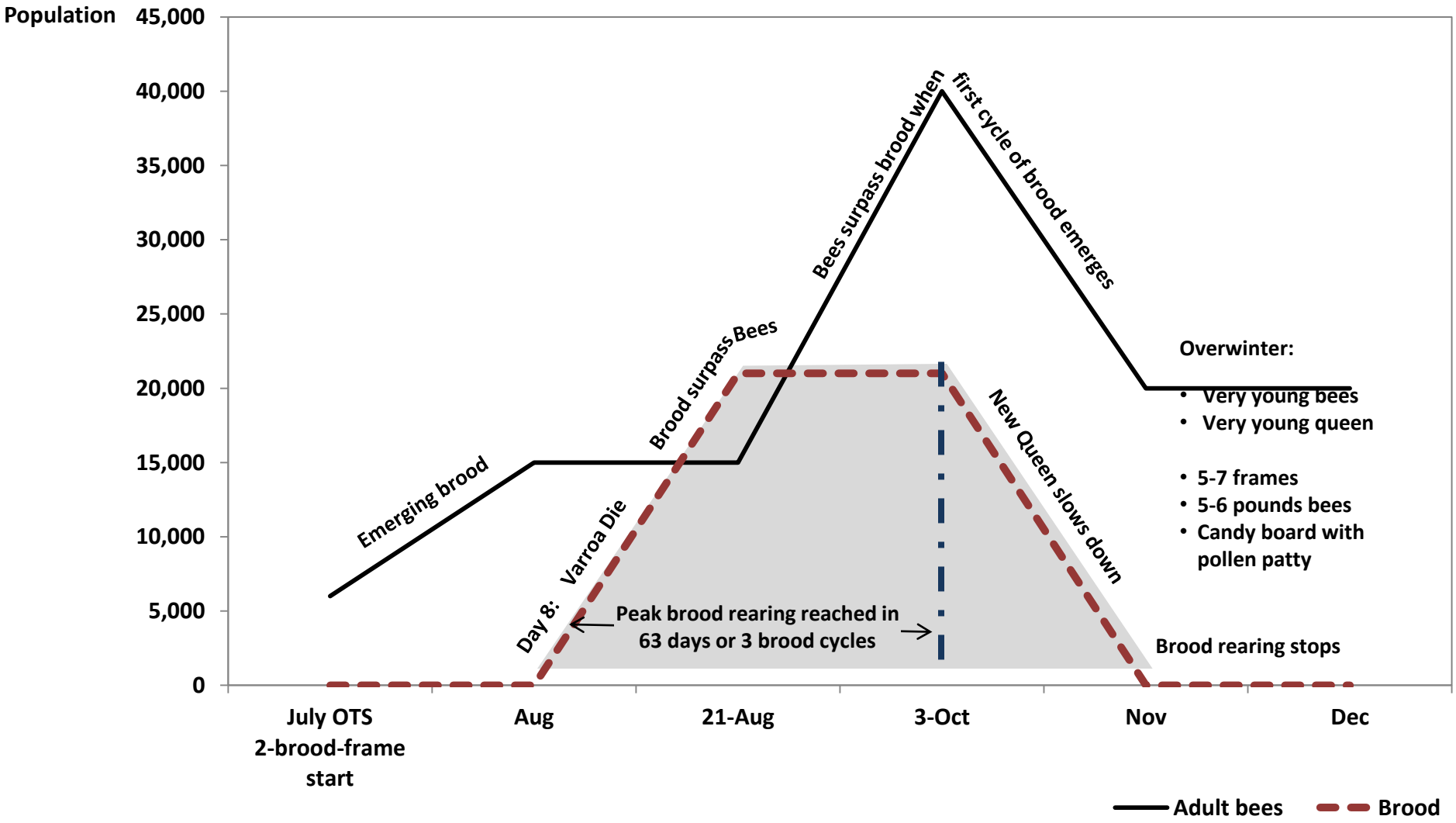
MITE LOAD: HONEYBEE VERSUS MITE REPRODUCTION STARTING WITH 100 MITES AND 10,000 BEES ON MARCH 8 IN THE GRAND RAPIDS, MI AREA (43RD PARALLEL)



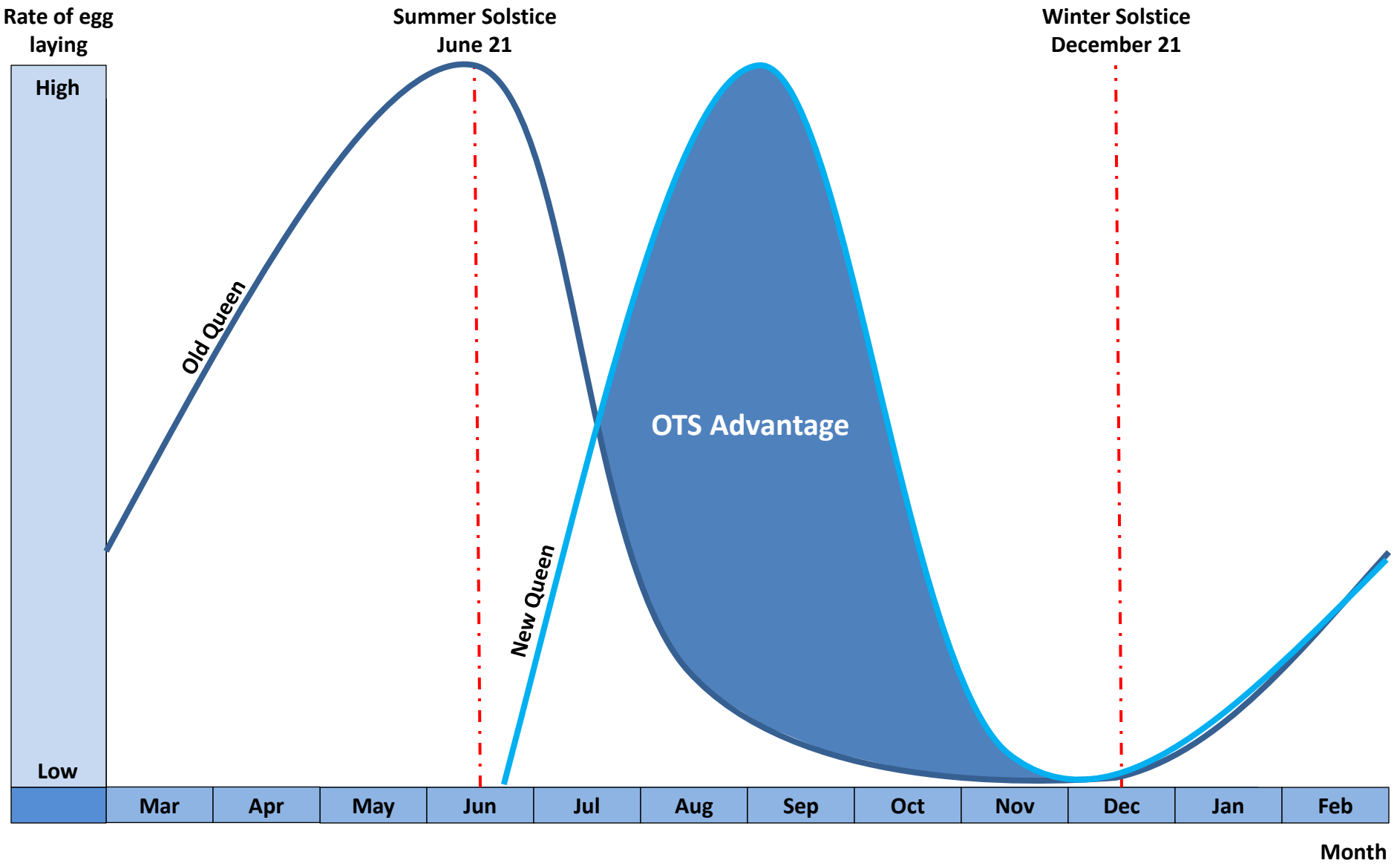
[1] The mite load of a honeybee colony in the USA is 3200 mites (*Mites of the Honey Bee,* Dadant & Sons Inc. 2001, page 234)

POPULATION DYNAMICS OF A JULY START ARE VERY DIFFERENT THAN A TRADITIONAL HIVE

Reaches 63,000 Bees With Queen Laying Minimum Of 1,000 Eggs/Day



POST-SOLSTICE EGG LAYING: OLD QUEENS SHUT DOWN BUT NEW QUEENS MAINTAIN PEAK BEYOND SUMMER SOLSTICE



***UNLOADING THE MITE*: MAKING STARTS BREAKS THE NORMAL BREEDING CYCLE OF THE MITE BY INTERRUPTING BOTH THE MEDIUM AND THE STIMULUS**

A fertile mite must have a *medium* to lay her eggs and a *stimulus* to start reproducing. The medium and stimulus are always on the 5th day of the larvae, day 8, one day before capping the cell