

OTS: THE ULTIMATE CHEMICAL-FREE MITICIDE



Photo by Carolyn Kreiger, Summer 2009

OTS

**NOTCH CLEAN TO THE MIDRIB, REMOVING THE BOTTOM
OF THE CELL WALL**

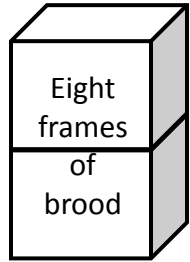


*Queen rearing: Mel Disselkoen method
notching & removing of the lower cell wall
© J. Schmidt photo*

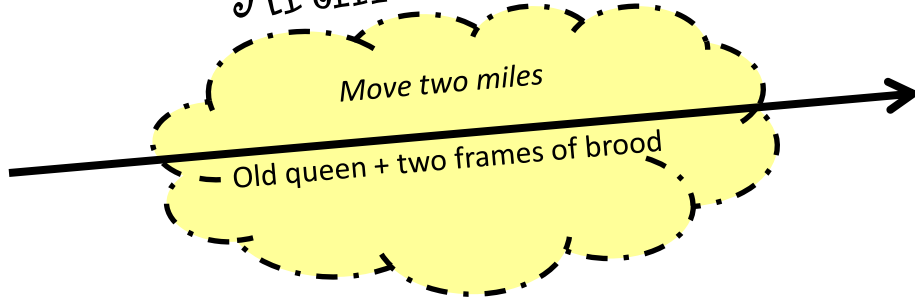
MEL'S APPROACH = OTS + DOOLITTLE'S APPROACH

Spring

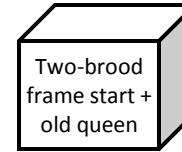
Original hive



Artificial Swarm



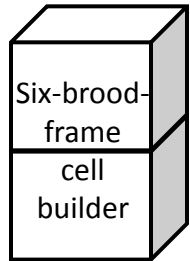
Replacement Bees



Bees stay put to seal brood

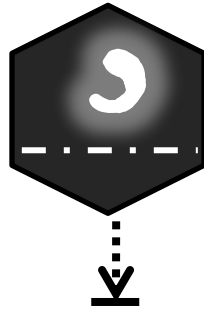
Artificial Supersedure

Cell Builder

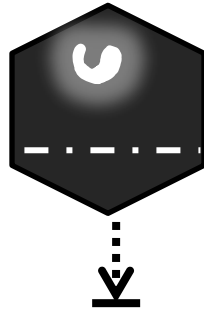


Notch

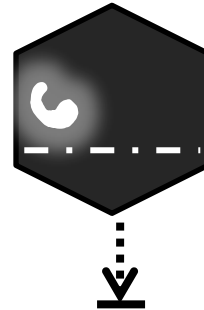
Frame 1



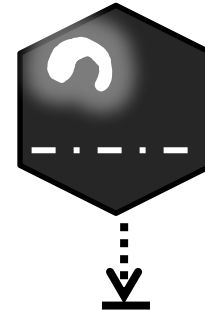
Frame 2



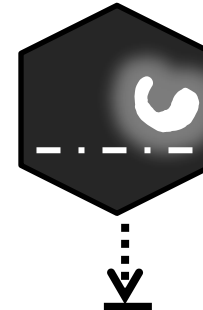
Frame 3



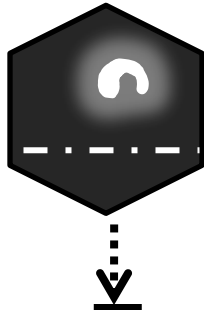
Frame 4



Frame 5



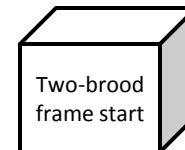
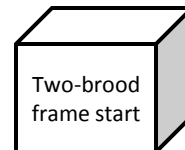
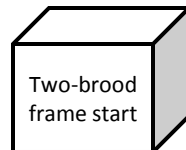
Frame 6



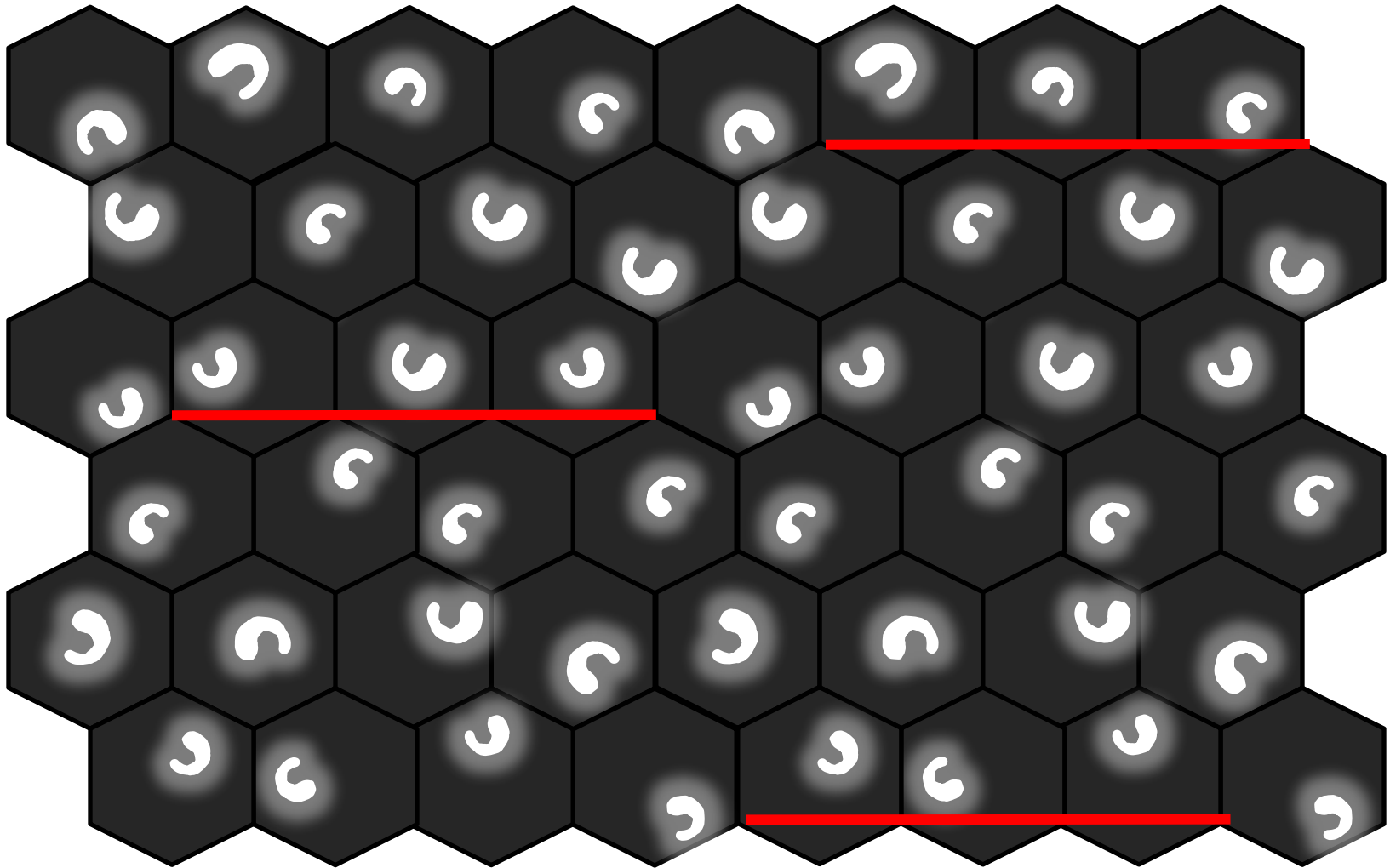
One week later

- ✓ Queen cell raised
- ✓ Brood sealed
- ✓ No stress

Same yard



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



OTS

**STEP 1: SCAN THE BROOD FRAME FOR
36-HOUR-OR-YOUNGER LARVAE**



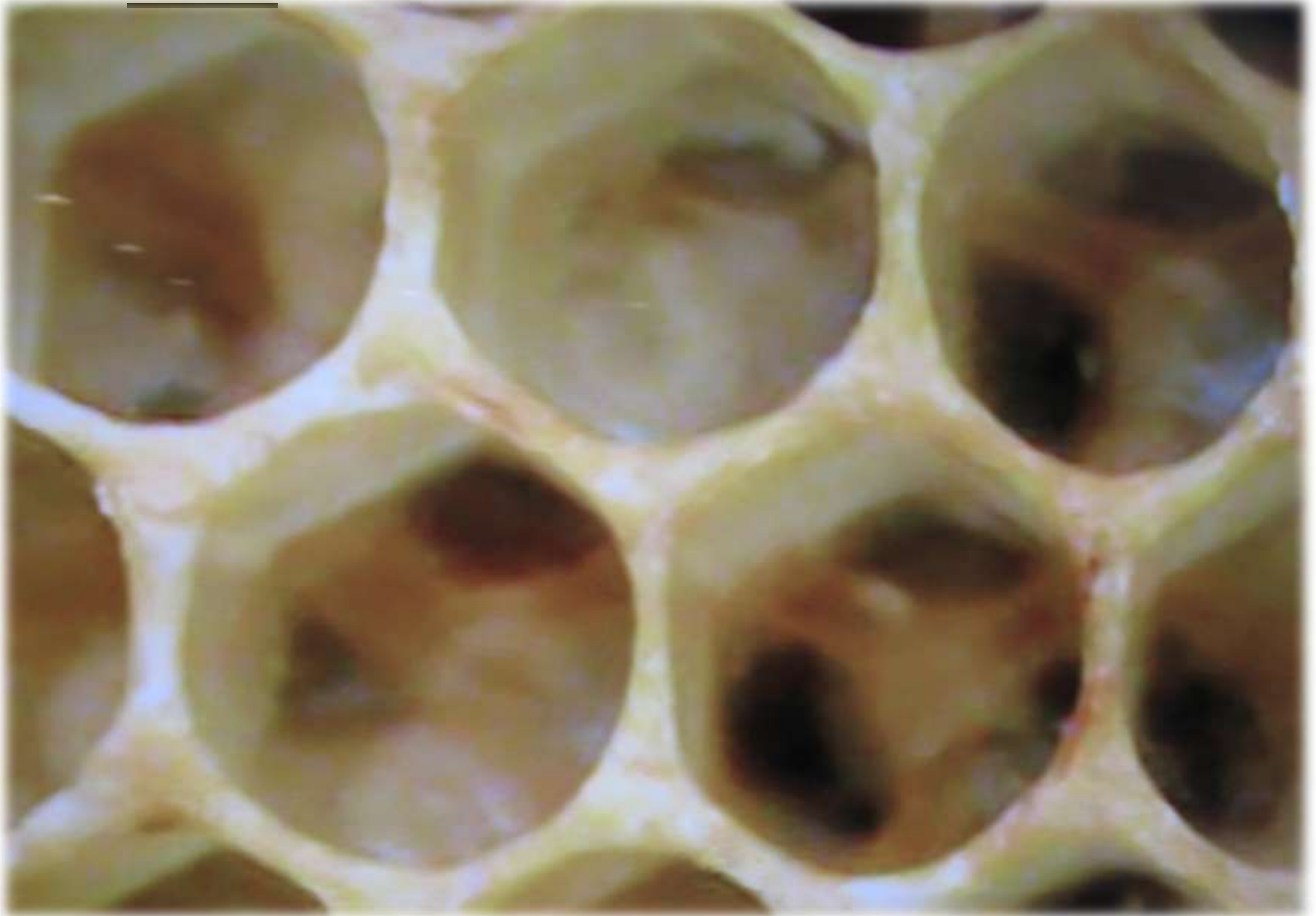
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STEP 2: CHOOSE THE BEST LARVAE TO NOTCH



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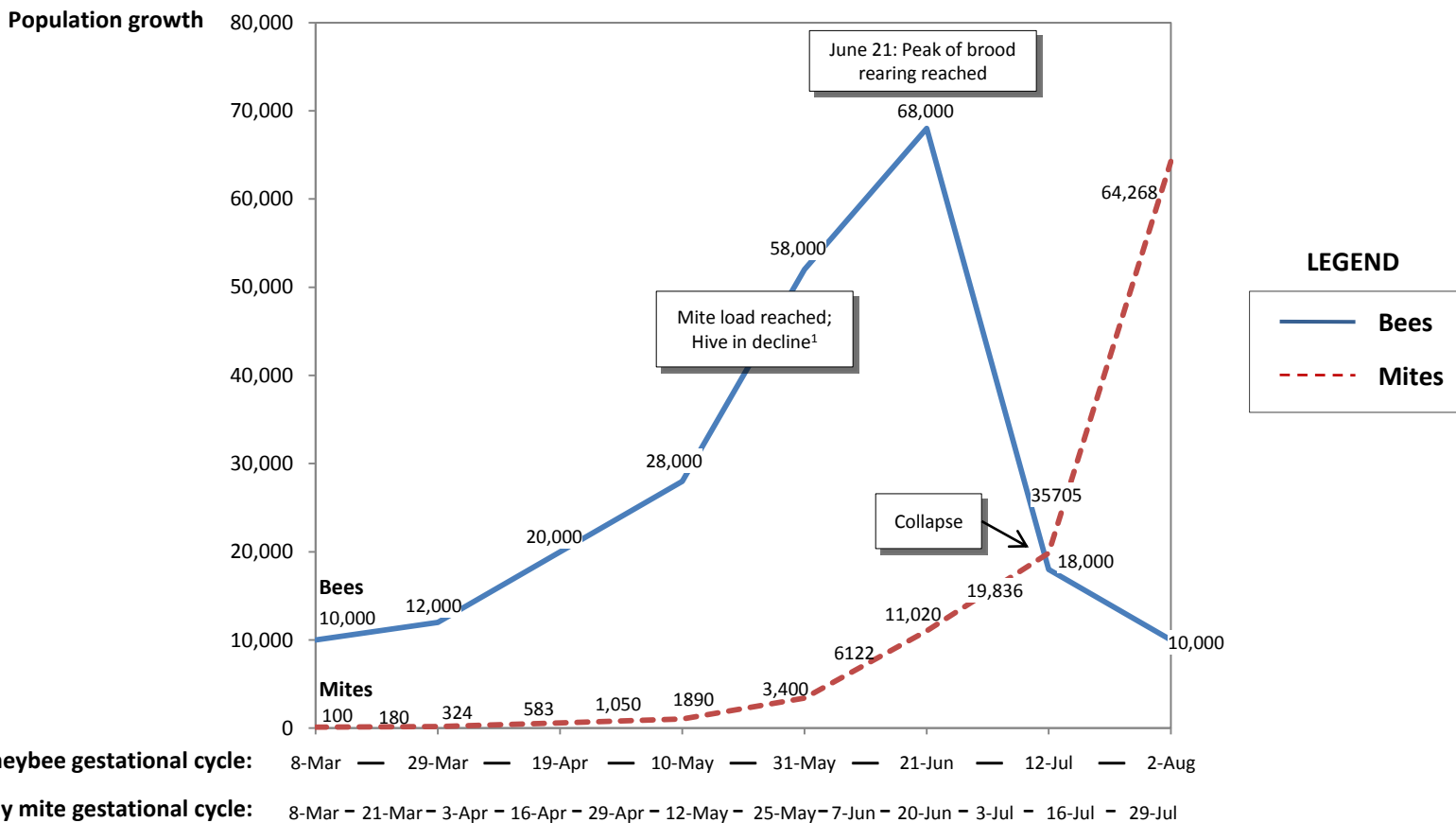


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NOTE: LARVAE TOO BIG INDICATES OLDER THAN 36 HOURS



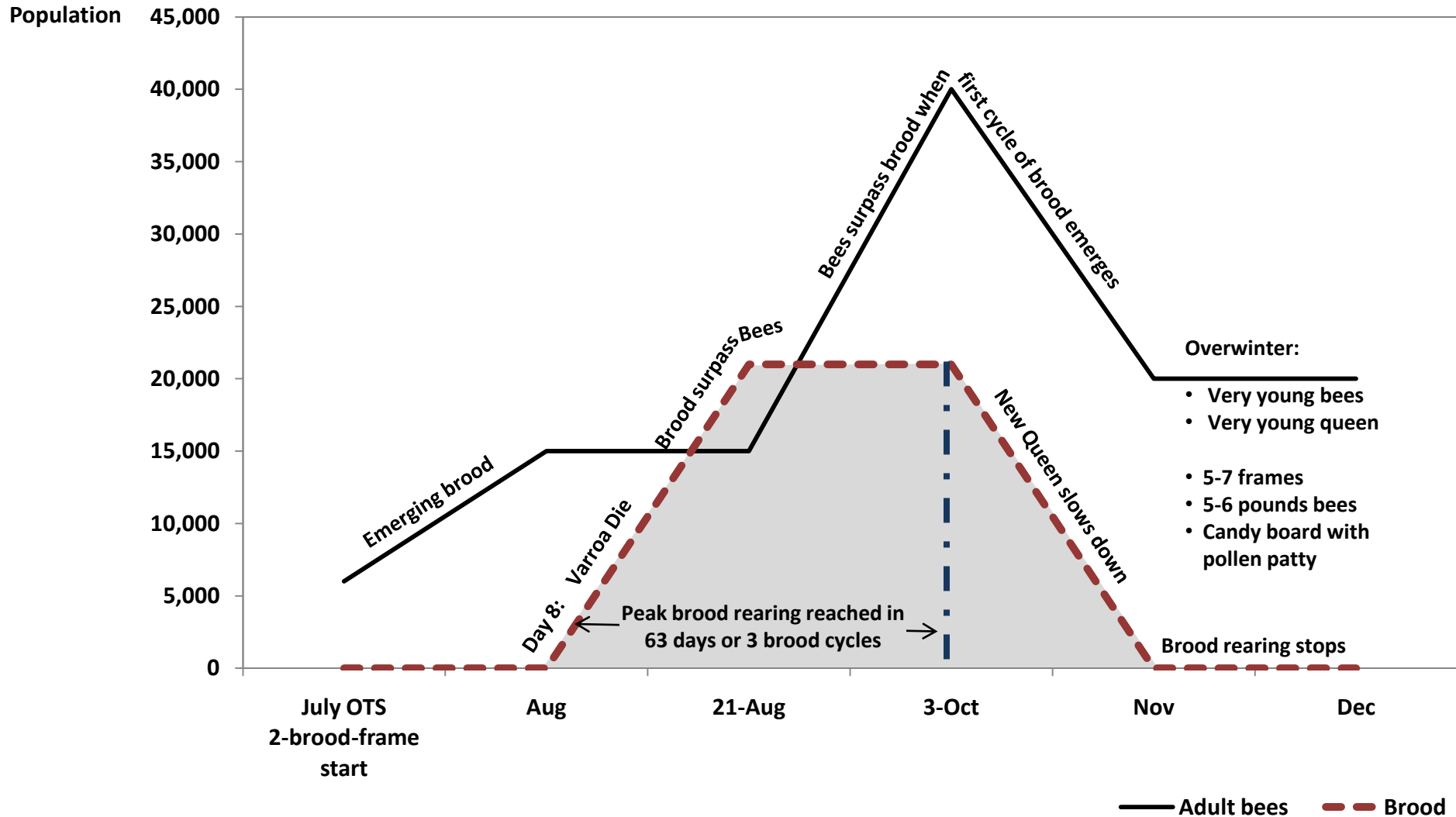
MITE LOAD: HONEYBEE VERSUS MITE REPRODUCTION STARTING WITH 100 MITES AND 10,000 BEES ON MARCH 8 IN THE GRAND RAPIDS, MI AREA (43RD PARALLEL)



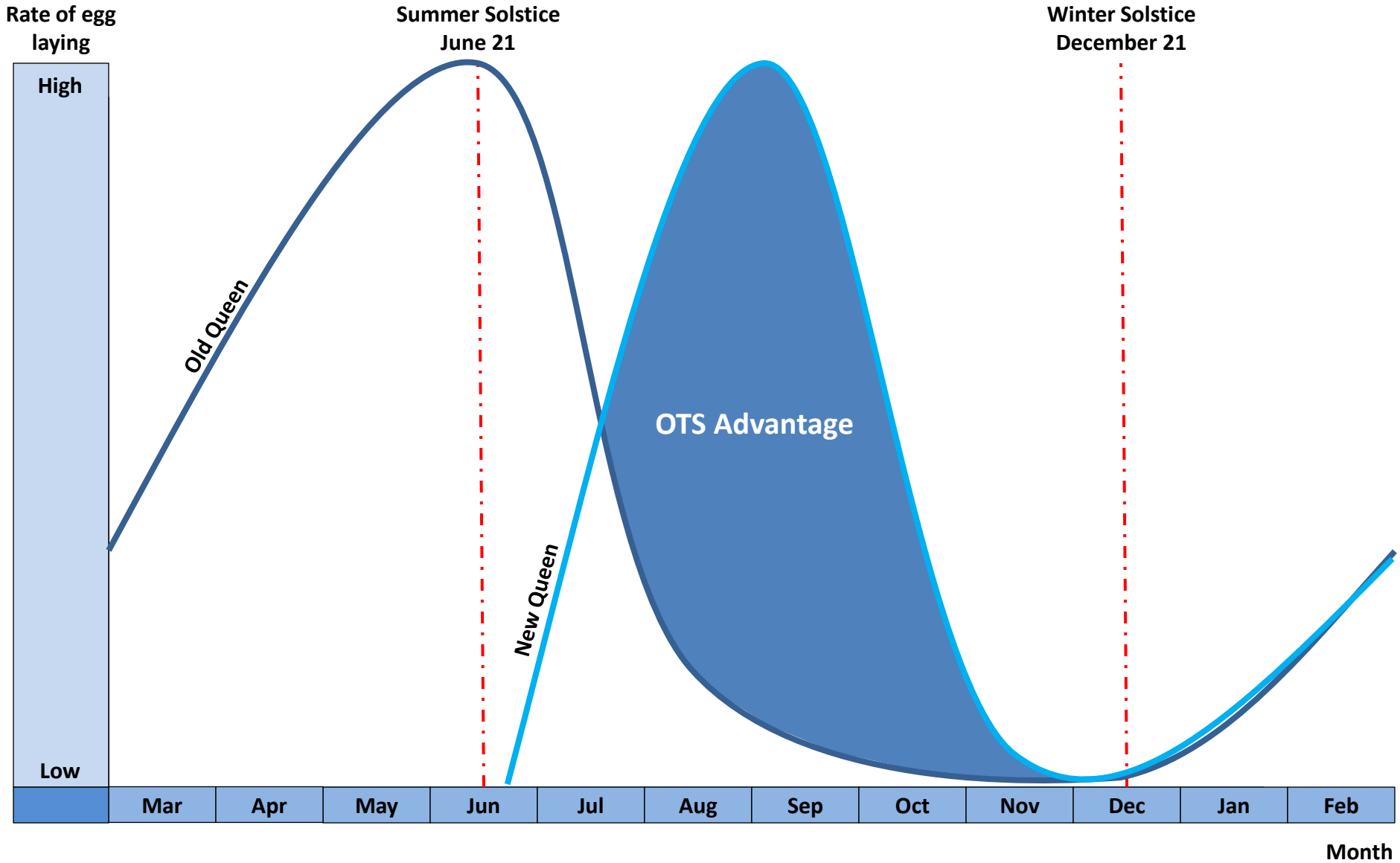
¹ The mite load of a honeybee colony in the USA is 3200 mites (*Mites of the Honey Bee*, Dadant & Sons Inc. 2001, page 234)

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 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

