

The Juniper Hill Plan For Comb Honey Production, Improved Two-queen System

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The Juniper Hill Plan was first described in the American Bee Journal, Jan. 1997² buried in a comprehensive 3-part publication about comb honey production. The plan was later republished independently: ABJ, April 2003³ and ABJ, May 2000⁴.

FORWARD

The plan is now better understood and explained. Spectacular results in comb honey production by the Juniper Hill plan have been reported here⁵ and elsewhere⁶, and by personal communication. Substantial savings in time and labor have been achieved by improvements.

The Juniper Hill plan brings together the three most important "secrets" for successful comb honey production in sequence as follows:

- 1) **An interruption in brood rearing** to set the stage for subsequent swarm control.
- 2) **Crowding the bees** to jumpstart comb honey production and
- 3) **The use of a powerful 2-queen colony** to continue comb honey production for the season.

These basic strategies remain intact. However, the procedures for queen management have been modified in order to induce and enable in-hive queen rearing completely and naturally by the bees, variably as in Plans A and B, or not at all as in Plan C. All of these modifications are secondary to and compatible with the three principle objectives above that define the basic plan.

As a result, The overall plan has become remarkably free of time-consuming labor and more foolproof. Unnecessary labor has been eliminated and more tasks delegated to the bees by design with honey bee nature. *PLAN B IS RECOMMENDED AS THE METHOD OF CHOICE FOR GENERAL USE.*

PROCEDURES

PLAN A: "PUTTING THE QUEEN DOWN"; WITH IN-HIVE QUEEN REARING.

STAGE 1: Interruption of Brood Rearing:
Before the swarming season begins, on

the threshold of the honeyflow(s), find the queen of a double brood chamber hive containing brood in both chambers and **put the queen down under an excluder** into the bottom brood chamber without redistribution of brood (fig.1) The queen is confined for 16 days by the excluder away from the brood in the top chamber (see Footnote). The brood (with bees) in the top chamber are further distanced from the queen's pheromones in the bottom chamber by an empty Halfcomb super⁷ plus an extracting super or shallow food chamber (fig. 1) This assures the construction of supersedure queen cells in the top chamber (#2). A notch in the excluder rim or a small auger hole is needed to allow the drones to exit above the excluder.

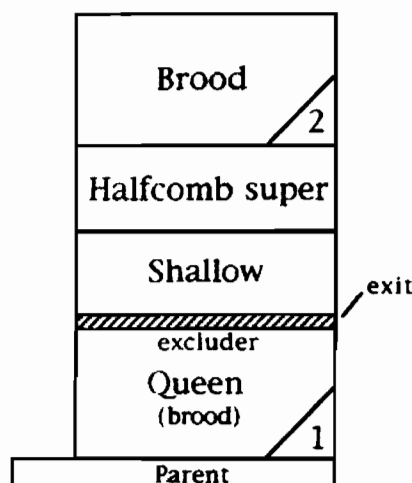


Fig. 1: The queen is confined in the bottom chamber at a distance from some of her brood in the top chamber.

During the 16 day brood break, there is time for the bees to raise a virgin queen in the top chamber from supersedure cells. The first virgin to hatch WILL destroy all other sister cells for you.

[NOTE: If finding the queen is a problem, see the Addendum for some tips on how to relocate and confine the queen in a double brood chamber hive without the need to find the queen.]

COMMENT: Most of the brood will have hatched and only some sealed brood will remain after 16 days. There will be no unsealed brood from which to raise swarm cells in the top honey producing chamber-to-be.

Also, during the Stage 1, the bees will fill the vacated brood cells in the queenless chamber with nectar and pollen, if available, and even begin comb building, given a honeyflow. The split (Stage 2) will be conducted on about day 16, before the new queen mates. Then, after the new queen mates and begins to lay (Stage 2), the stockpiled nectar will be promptly moved up into comb supers

It is well known that bees on brood which becomes physically distanced from contact with queen pheromones in the same hive, but exposed to the aroma of pheromones, will build queen cells to supersede the queen, which they presumably perceived to be flawed. This principle was discovered by accident years ago by C.C. Miller, *Fifty Years Among the Bees* (1914), before queen pheromones were discovered.

The break in brood rearing is the most reliable swarm control procedure known. George Demuth⁸ of U.S. Department of Agriculture first defined this principle. "All successful remedial measures for swarming — have one factor in common — a temporary disturbance in the continuity

of young bees."

Brother Adam of Buckfast Abbey⁹ later endorsed this principle "There are an endless number of swarm prevention measures; none can be relied on with any certainty, apart from the one involving the removal of the queen for a period of 10-14 days. . . This method of swarm control excludes any uncertainty. There is no question, will it or will it not work?"

According to Demuth, this fundamentally important principle for swarm control has not been in general use because of the lack of procedures which can be timed to avoid crop losses later (4-6 weeks) due to the decline in forager population caused by the brood break. This problem is resolved in the Juniper Hill plan).

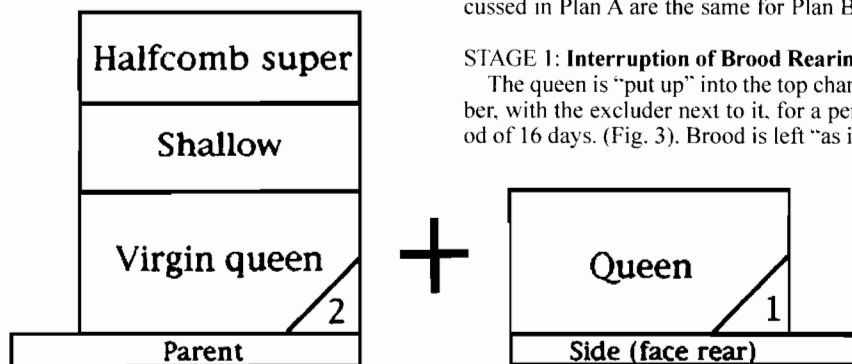


Fig. 2: The bees are crowded into the parent stand by the Juniper Hill Split

STAGE 2: The Concentration of Bees for Comb Honey Production.

On day 16 the top brood chamber containing the virgin queen is set down on its own bottom board with the supers on top on this parent location; the bottom brood chamber, containing the hive queen is set to the side facing rear (fig. 2). This split on day 16 is timed to precede possible mating flights by the virgin queen.

All field bees return to the parent honey producing stand from which the virgin queen will soon mate.

The first comb honey is produced on the parent stand (fig.2) until the new queen has brood in all stages. The side stand (fig.2) may need a comb super prior to the reunion in about 5 weeks.

COMMENT: The field force has been concentrated in the parent stand for honey production which can be spectacular. The bees rush nectar stored in vacated brood cells during Stage 1 up into the super(s) to make room for the queen to lay: This behavior has not been well recognized or understood.

STAGE 3: Reunion to Form a Two-Queen Hive.

When both splits (fig. 2 above) have brood in all stages, return the side to the parent on top without the use of paper. The side split may have needed a super during this time. All supers go on top.

After the reunion, continue to produce comb honey for the remainder of the sea-

son. This is temporarily a two-queen colony; temporary because after an unknown period of time only one queen will prevail - likely the younger queen.

Given comb honey supers as needed, the bees in this powerful colony are unlikely to swarm and are capable of producing comb honey even in marginal flows.

PLAN B: "PUTTING THE QUEEN UP" WITH IN-HIVE QUEEN REARING.

Plan B, in which the queen is "put up" instead of down, is the method of choice over Plan A. A new laying queen is reared by the bees, from start to finish, already in place on the parent honey producing stand; and the procedures in Stage 2 become simplified and improved. The principles discussed in Plan A are the same for Plan B.

STAGE 1: Interruption of Brood Rearing.

The queen is "put up" into the top chamber, with the excluder next to it, for a period of 16 days. (Fig. 3). Brood is left "as is"

in both hive bodies.

A virgin queen is raised below and becomes mated below already in place.

STAGE 2: Concentration of Bees by Reductive Split:

The split is now much easier since the queenright brood chamber is on top. The top chamber (#2) is simply set down to the side on its own bottom board facing rear. The field bees return to the parent stand. The

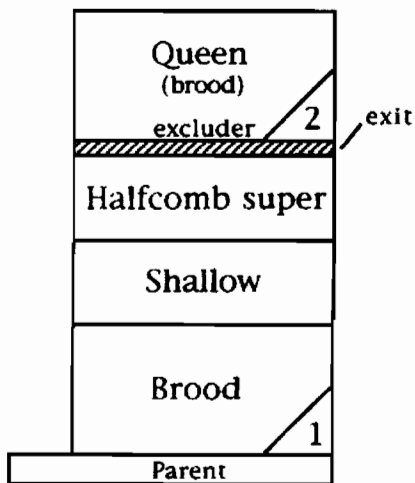


Fig. 3: The queen is confined in the top chamber at a distance from some of her brood in the bottom chamber.

hive queen remains to head the side split.

The parent hive arrangement is identical to that in Plan A at this stage.

STAGE 3: The Reunion.

When there is brood in all stages in both chambers, the queenright chambers are combined to form a powerful two-queen hive to continue comb honey production. If the younger queen is in the top chamber, her survival is favored.

PLAN C: "PUTTING THE QUEEN UP"; WITHOUT IN-HIVE QUEEN REARING

The fundamentally important principle of swarm control by a temporary interruption of brood rearing (Demuth⁶) has not been in general use because there have not been manageable procedures for controlling the timing to meet regional conditions and beekeeper preferences.

For a prompt start in comb honey production on any honeyflow comparable period throughout the season, the Juniper Hill plan can be managed in Stage 1 to jump-start comb honey production on that flow.

This procedure may be the method of choice for general use by those with their own stock selection program, or want to save time and labor and to have precise control over scheduling. Instead of raising a queen, the hive queen is returned to the parent stand after the brood break.

STAGE 1: The queen is "put up" into the top brood chamber for a period of 10-14 days directly over an excluder (fig. 4). Only an excluder is used to separate the two brood chambers, each containing brood "as is". The construction of supersedure cells below is discouraged by the close proximity, especially in strong colonies when some nectar is coming in. During this period the bees also stockpile nectar (and pollen) in the vacated brood cells below, which later is moved up into comb honey supers.

Comment: Apparently, with the active brood nest on top, the mingling of workers throughout both brood chambers when nectar is coming in enhances the contact distribution of queen pheromones sufficiently to suppress supersedure queen cell construction.

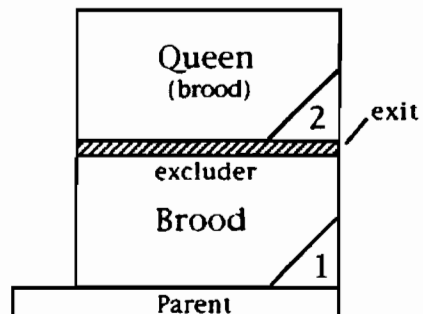


Fig. 4: 10-14 day interruption of brood rearing in the queenless chamber without inducing supersedure cell construction.

STAGE 2: After 14 days, the colony is split (fig. 5) simply by setting the queenright top chamber down to the side on its own bottom board, turned to face rear. It is unlikely that the bees will have built supersedure cells below under these conditions. The bees on about 2/3's of the frames at the side are shaken back into the parent stand, making absolutely certain that the queen is also returned to the parent stand is with them. The queen is most likely to be on the central frames.

Comment: This "set down" split is much casier than the Juniper Hill split in Plan A. Also, the shake back becomes possible here.

A shallow extracting super with honey may be used directly under this comb super to buffer it against travel stain from brood, just as in Plan A or B at Stage 2.

The hive queen will start laying at once and the bees will move nectar stockpiled during the break up into the super (an artificial flow) to make room for the queen to lay. In about a week all remaining sealed brood will have hatched.

The side hive, now with only young bees on brood, is given a laying queen or ripe queen cell. The side split is in the best possible condition for acceptance of a queen or cell: a convenient opportunity for maintaining or improving stock.

STAGE 3: The Reunion to Form A Two-Queen Hive.

When the side hive with a new queen has brood in all stages, it is set back onto the parent stand, with all supers on top. The forager population decline imposed by the interruption in brood rearing in Stage 1 is restored. Alternatively, hives from winter and/or varroa losses could be restored on the side hive, at the expense of foregoing Stage 3.

Both Plan B and Plan C, in which the

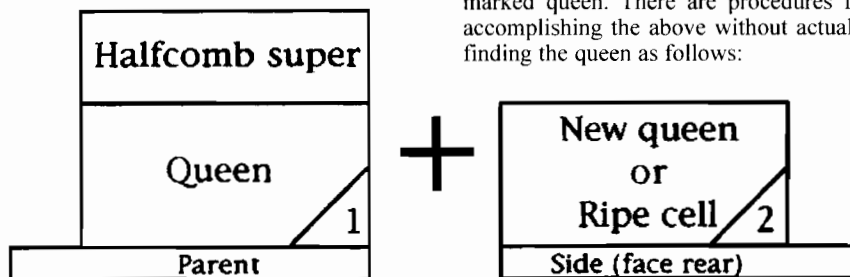


Fig. 5: More bees are crowded into the honey-producing parent stand because of the fly back combined with the shake back. (The queen must be shaken or put back.)

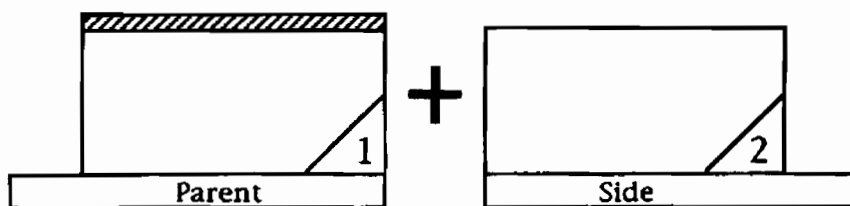


Fig. 7: The queen will be in the chamber with eggs.



Comb building uniformly jump-started by an artificial flow, as viewed in Halfcomb cassettes.

queen is "put up", require the least possible time and labor.

ADDENDUM

1. How to locate and/or relocate the queen of a double brood chamber hive and confine the queen in one brood chamber.

Obviously, the most certain way to confine the queen of a double brood chamber hive in one of the chambers by an excluder is to search for the queen and manually put her in place. The queen is most likely to be in the top chamber in a week or so following the practice of hive reversal in early season management. Suggestion: Search the chambers while arranged as in fig. 4, ready to restack in Stage 1.

This is sometimes difficult, even with a marked queen. There are procedures for accomplishing the above without actually finding the queen as follows:

(1) Shake the bees and queen down: After installing an excluder (fig.3) shake all of the bees (plus queen, if there) down at the lower front entrance, frame by frame. Be sure there is a ramp for the bees and queen to re-enter and make sure there is no cluster space under the hive. The bees redistribute.

(2) Or use the excluder:

Install the excluder (fig. 3) and wait four days. The queen will be in the chamber with eggs (fig. 4). That chamber becomes the queenright chamber in Stage 1. (Either plan A or plan B).

(3) Smoke the queen down:

A less reliable option for putting the queen down is to smoke her down and then install the excluder. The bees redistribute.

Footnote: This plan as originally disclosed, but revised later, mistakenly includes a time consuming redistribution of brood between the two brood chambers of a two-brood chamber hive in order to separate the queen from most of her brood by an excluder, as in the Demaree plan for swarm control - which this is not. It is necessary only to separate the queen in one chamber from part of her brood in the other for a finite period of time. The

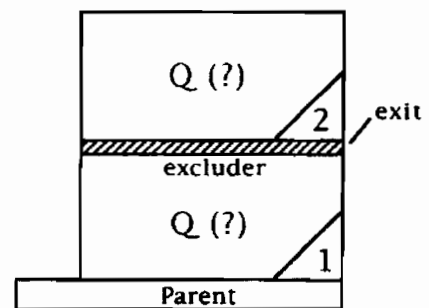


Fig. 6: Using the excluder to find the queen.

brood remains “as is” in both chambers. Also the plan is no longer dependent on the use of a clipped queen. Considerable labor is eliminated.

- ¹ Juniper Hill Apiary, 2225 S 36th St Galesburg MI 49053. Halfcomb@aol.com. www.Halfcomb.com.
- ² Hogg, J.A. *American Bee Journal* (Jan,1997).
- ³ Hogg, J.A. *American Bee Journal* (April 2003) “The Juniper Hill Plan for Comb Honey Production
- ⁴ Hogg, J.A. *American Bee Journal* (May, 2000) “The Juniper Hill Split for Comb Honey Production.”
- ⁵ Weaver, M&B, *American Bee Journal* (April 2004). This paper is about Mr. Herman Danenhower of Kutztown PA who also said (personal communication) that “*It is the best system of all, and I have tried them all.*”
- ⁶ Taylor, Richard, *Bee Culture* (April, 1999). “Bee Talk”.
- ⁷ Hogg, J.A. *American Bee Journal* (Jan,1996) “Comb Honey in the Halfcomb Cassette Revisited.”
- ⁸ Demuth, George S. “Commercial Comb Honey Production” *Farmers Bulletin* 503 (1917) and *Farmers Bulletin* 1039 (1919) U.S. Department of Agriculture.
- ⁹ Brother Adam, *Beekeeping at Buckfast Abbey*, pg. 46-47.