

# AMERICAN BEE JOURNAL

VOLUME 143 NO. 4

APRIL 2003



**The Juniper Hill Plan  
for Comb Honey Production**  
... 285

**The World of GMOs:  
How it Relates  
to Beekeeping ... 289**



**Queen Rearing  
Essentials**  
... 283



**Beekeeping Issues:  
IPM and Varroa Control**  
... 295

**More Plants for a Bee Garden ... 300**



# The Juniper Hill Plan

## For Comb Honey Production

by JOHN A. HOGG<sup>1</sup>

*The Juniper Hill Plan<sup>2,3</sup> was developed over more than twenty years concurrently with the Halfcomb Cassette,<sup>4a-d</sup> the newest comb honey section, for the purpose of evaluating the cassette's performance by reproducible and efficient procedures. The procedures, as now refined and recommended at the completion of plan development, are as follows.*

### THE PLAN

The Plan (Fig.2) begins ideally on the threshold of the swarm season before swarm cells are started, or just started, using queenright, double-brood chamber hives as in Fig. 1.

The first step is the temporary use of a modified DeMaree procedure to induce queen cell construction and to set the stage for subsequent swarm control (STAGE I, Fig. 2) This blends with the two most reliable and widely practiced comb honey strategies: (1) The REDUCTION of a double brood cham-

ber hive to one brood chamber to concentrate the bees on early comb honey production (STAGE II, Fig.2) followed by (2) The REUNION of these brood chambers, both queenright, to form powerful 2-queen colonies for the remainder of the season (STAGE III Fig.2). All three stages are condensed into one continuous plan over 6 weeks (±) for full season comb honey production by procedures which also enable in-hive queen rearing by the bees and extended swarm control.

A novel backup swarm intervention split is included as an alternative to the Juniper Hill Split for use whenever unexpected swarm preparation is encountered. This is an adaptation of the principle of swarm control by "separation of flying bees" from one of the splits discovered by Snelgrove<sup>5</sup> and includes the new principle of a "separation of house age bees" in the other split.

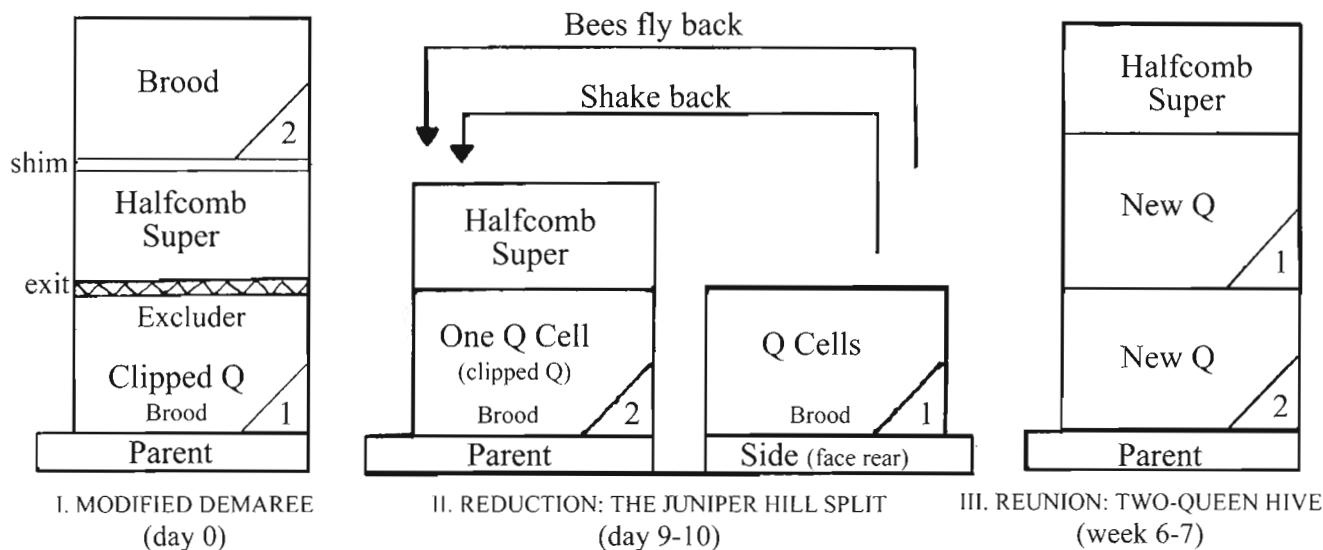
By clipping the queen in the spring, swarming is prevented prior to the start of the plan and until the clipped queen is lost or displaced in STAGE II of the plan, or sooner, at which time other swarm control measures are in place.

The plan comes full circle after harvest with the same equipment intact for the winter.



Fig. 1: Juniper Hill Apiary. In the year 2000, the hive in the foreground produced a record eight supers of forty cassettes each (12 oz net).

### FIG. 2. THE JUNIPER HILL PLAN



## PROCEDURES

**PREPLAN:** (1) The queen is clipped (and marked) in the spring well in advance of the swarming season, which is also the time when the queen is most easily located. If the queen had been clipped the previous season, check to be sure she has not been superseded.

Clipping the queen serves not only as a safety net against the loss of bees in an unanticipated swarm in the preplan period, but also until she is displaced automatically (or made use of) after the plan is implemented in Phase II. See Addendum for more on clipping.

(2) The brood chambers are reversed (deep swapped) in mid April (±) before significant honey flows begin. This redistribution of bees, brood and comb induces brood expansion more evenly between the two brood chambers by the time the plan is initiated.

(3) The hive is monitored periodically through April for readiness to start *STAGE I* of the plan, probably about May 1, provided that the colony (a) is strong enough (10-12 frames of brood) and (b) has only queen cell cups, or cups with 1 to 2 day old larvae.

The top chamber may be monitored by tipping on end to examine the frame bottoms for queen cells and between the frames for brood. If ready, *STAGE I* may be started at once while open.

*NOTE: If sealed or near sealed cells are found, it is too late for Stage I. Swarm intervention is required. Instead, STAGE I is by-passed and the Juniper Hill Split in STAGE II is substituted by the Alternative Swarm Intervention Split as soon as the sealed cells have reached the pupal stage (see Addendum).*

### STAGE I: MODIFIED DeMAREE: TEMPORARY SEPARATION OF QUEEN FROM BROOD.

The queen is confined for 9 to 10 days in the lower brood chamber (#1) of a double brood chamber hive (Fig. 1) by an excluder, notched for drone escape – thus inducing by the Miller principle the construction of superseded queen cells in the upper queenless brood chamber into a DeMaree-like (#2).

The stimulus to build cells is enhanced when the brood chambers are further separated by a super, preferably a super of Halfcomb Cassettes, which then becomes the first super to go on the hive at the end of this 10-day period. An optional rim of 3/4" wood (shim) directly under the brood allows more space for queen cells to be built on the frame bottoms. Cells are then more safely moved on frames or otherwise without damage.

To confine the queen below without having to locate the queen, after installing the excluder, etc., all of the bees in the top brood chamber (#2) are shaken from each frame at the entrance of the lower chamber (#1). While shaking, each frame can be

quickly scanned for an overlooked queen cell; if the queen is spotted, she is put down and the shakedown need not be completed.

An alternative for putting the queen down, besides manually, is to first smoke (or fume) the bees down, and then install the excluder, etc. After the shakedown, the bees redistribute throughout the hive, while the queen remains confined for the 9-10 day period.

At the end of the 9 to 10 day period, the conditions in the queenless honey producing hive to be (#2) are much like those in a hive that had swarmed 9 days ago and to which now the bees have returned after the Reduction (Stage II) is completed; 1) Queen cells are present for queen succession; 2) All open brood has become sealed so that additional queen cells are not possible; 3) The interruption of brood rearing provides ongoing swarm suppression for a few weeks; and 4) Nectar is stockpiled in vacated brood cells to jump start comb honey production when the new queen appears.

### STAGE II: REDUCTION BY THE JUNIPER HILL SPLIT.

After 9-10 days, immediately before the Reductive Split, the top brood chamber (#2) is searched frame by frame to select one frame with a single choice queen cell for return into the same chamber after the search; and another frame with any number of cells is set aside to be exchanged into the side chamber after the split.

If one extra cell is overlooked on the same parent stand, a swarm will issue when the virgin goes out to mate. Cells are less likely to be overlooked if some of the bees are lightly shaken from the frame to reveal obscured cells.

The top queenless chamber (#2), now containing one ripe queen cell, is set down onto the parent location on a second bottom board, displacing the lower brood chamber to the side on its own bottom board. The side split is turned 180° to face rear.

With both brood chambers exposed, about two-thirds of the bees and the clipped queen are shaken back into the top of the parent stand. All flying bees know their way back to the parent stand, concentrating the bees there.

During shakeback, check each frame after shaking to be sure that the clipped queen is not left in the side split. On the parent stand, with only one ripe queen cell, she will be displaced – lost in an attempted swarm or killed by the newly hatched virgin.

Lastly, unless queen cells had been found in the side split during shakeback, the second frame of cells, any number, is now exchanged for a cell-free frame there.

*Note: The clipped queen need not be sacrificed: A marked clipped queen may be easily located before or during shakeback, to be retained at the side, or held in storage*

*as a backup in either split. If she is retained at the side she will prevail over the cells, which will disappear; had she been shaken back to the parent according to plan, the single virgin queen there would have prevailed. Thus, the clipped queen may serve as a backup to queen rearing failures in several ways.*

The new queen in the side is easily found later to confirm mating, or to clip and mark. Medication at the side is an option during the 5-6 weeks of honey production on the parent stand.

Comb honey supers, the first being the empty Halfcomb super used in *STAGE I* to distance the queen, are installed on the parent stand. Interim supering of the side split before reunion usually is not needed, except when the hive queen has been retained there.

You will know when the virgin there is mated; the bees vigorously begin to move stockpiled honey up into the super to make room for the queen to lay.

### STAGE III: THE REUNION: A TWO-QUEEN HIVE.

After about 5 weeks, or when the side split (#1) has a full set of brood in all stages and young bees hatching, the side is reunited with the parent on top to create a powerful two-queen colony. Supers are returned to continue comb honey production without interruption on the parent stand.

After reunion, the two queens may co-exist for sometime before one of them disappears; however, the beekeeper might choose to separate them by installing a queen excluder, notched at the rear for drone escape, to extend 2-queen status for the duration of comb honey production in the Consolidated Brood Nest (CBN) double Q hive<sup>6</sup>.

### SUPERING:

These procedures were developed using supers of Halfcomb Cassettes. In regions with reliable nectar availability, four to five supers or more per colony may be expected on double queen hives.

A pair of Halfcomb supers may be required at the start, after the Juniper Hill split, to accommodate the bees in a strong colony.

Thereafter, supers are given when the last super is about 2/3 full (easily observed). Tightly conservative supering results in better filled cassettes with less incompletes; the bees are given no more room than they need for uninterrupted comb building.

Supers are moved upward in the order given so that first supers on are the first off at the top, where they are distanced from brood to minimize excessive staining and easily monitored for complete capping.

Premature sealing of partially filled Halfcomb Cassettes is usually the consequence of interruptions in the honeyflow. This is especially likely when the colony strength is inadequate for continuous comb

building.

Adding a super also to the side split allows more latitude in timing of the reunion and may provide a head start in that super before reunion.

**ADDENDUM**

**ALTERNATE STAGE II: REDUCTION BY THE SWARM INTERVENTION SPLIT.**

The alternate SWARM INTERVENTION SPLIT (Fig. 3) in *STAGE II* achieves the same result as the JUNIPER HILL SPLIT and is compatible with the overall plan.

The split is started when swarm cells are in the pupal stage, ages 12 to 15 days. See queen development stages (Fig.4) to estimate by comparison the date for the split, if not already on this occasion.

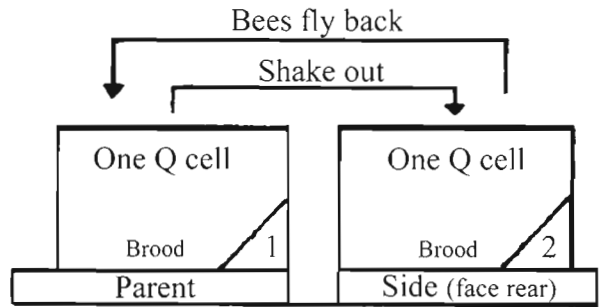
First, it is the bottom chamber that is retained in the parent location; the top chamber is simply set down on its own bottom board to the side, a conventional split, and turned 180° (Fig3) to face rear.

Then, all of the bees are shaken completely from each frame out of the parent split into the side split. As in the Juniper Hill Split, all cells but one on the parent stand are killed as the shake out is conducted. While free of bees the exposed swarm cells become much more conspicuous. The clipped queen, wherever located and if still present, ends up in the side split, along with all of its swarm cells.

The flying bees, of course, return to the parent stand, so that at this point we have only the field force concentrated there with brood and one mature cell. In the side only house-age bees remain with brood and queen cells, and possibly the clipped queen, if not lost already.

The separation of all nurse bees from the

*Fig. 3:  
ALTERNATE  
REDUCTION:  
THE SWARM  
INTERVENTION  
SPLIT*



after all other cells have been destroyed during shakeout.

Hereinafter *STAGE II* is unchanged. Supers are installed on the parent stand. The swarm intervention split may be used on any occasion to put a hive preparing to swarm back to work in a hurry.

**MORE ON THE CLIPPING OF QUEENS:**

The Killion method of comb honey production relies on the use of clipped queens, the foundation of their swarm control system, as described by Gene Killion in his book "Honey in the Comb" (1<sup>st</sup> Edition, Dadant & Sons Inc., 1981).

By guarding against the loss of bees in attempted swarming, this failsafe procedure makes it possible to reduce a double brood chamber hive to one, while the clipped queen is still present, timed precisely to coincide with the onset of the honeyflow. The stage is set for requeening and completion of swarm control measures, while comb honey is produced swarm free.

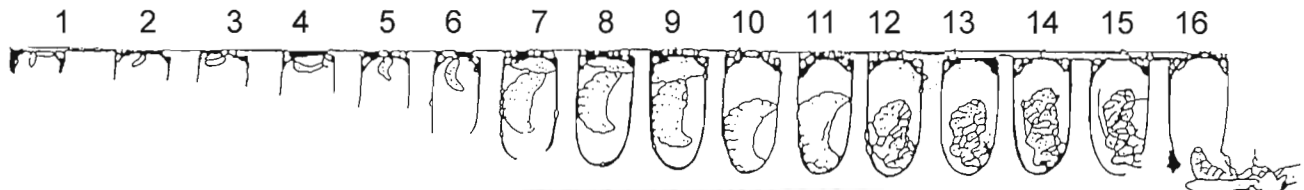
In the Juniper Hill Plan the clipping of queens also permits precise timing of procedures, but tied to the status of swarm cell construction instead. This allows more

choices for timing.

"Honey in the Comb" (pg. 76) describes how to clip a queen. The value returned for so little effort in the Juniper Hill Plan, where queens need not be located or handled at all otherwise, makes it worthwhile to master the technique. Drones can be used for practice. And, of course, clipped queens can be bought for spring requeening. Such queens can be rescued in Stage II for use in the side split or elsewhere.

**Bibliography**

1. John A Hogg, Juniper Hill Apiary, 2225 S 36<sup>th</sup> St. Galesburg, MI 49053. 269-665-7936. [Halfcomb@aol.com](mailto:Halfcomb@aol.com). [www.halfcomb.com](http://www.halfcomb.com).
2. Hogg, J.A. 1997. "Comb Honey I: Hive Management, Part 1 of 3 Parts." *American Bee Journal*, Vol. 137 (1): pgs. 39-45. January issue.
3. Hogg, J.A. 2000. "The Juniper Hill Split for Comb Honey Production." *American Bee Journal*. May issue.
- 4a Hogg, J.A. 1980. "A New Comb Honey Concept." *American Bee Journal*, Vol. 120 (5): pgs. 357-362.
- 4b. Hogg, J.A. 1984. "The Halfcomb Honey Cassette." *American Bee Journal*, Vol. 124 (4): pgs. 265-272.



*Fig. 4: Queen Development Stages (days)*

parent stand at this point suppresses the construction of replacement swarm cells there, which could permit swarming from the parent when the virgin mates. The separation of flying bees from the side split reverses the swarm syndrome there.

If during the above "shakeout" it is found that a cell has hatched and that other cells are still present, some containing active virgins not allowed by the bees to emerge, the above split procedure may still be conducted. Now however 1) It will be the free roaming virgin(s) plus cells that will remain in the side split after shakeout, and 2) The single cell to be left in the parent split will likely need to be substituted for by one of the imprisoned virgins – caged temporarily for return to the parent



*Fig. 5: Dr. Roger Hoopingarner (left), professor emeritus, Michigan State University, with author inspecting a record hive.*

- 4c. Hogg, J.A. 1989. "Comb Honey in the Halfcomb" *American Bee Journal*, Vol. 129 (4): pgs. 230-240.
- 4d. Hogg, J.A. 1996. "Comb Honey in the Halfcomb Cassette Revisited," *American Bee Journal*, Vol. 136 (1) Pgs. 35-41, January issue. Best summary.
5. Snelgrove, L.E. "Swarming, Its Control and Prevention" 13th Edition, 1981, see esp. pgs. 41 & 42 and "Preface to 1st Edition". Included in this volume.
6. Hogg, J.A. 1981. "The Consolidated Double Queen Brood Nest and Queen Behavior" *American Bee Journal* Vol. 121 (1) pg. 36; *ibid* 1983 "Methods of Double Queening the Consolidated Brood Nest Hive, Part I" Vol. 123 (5) pgs. 385-388; "Part II" Vol. 123 (6) pgs. 450-454.



Fig. 6: This is the (near) total production from record hive in Fig. 1.

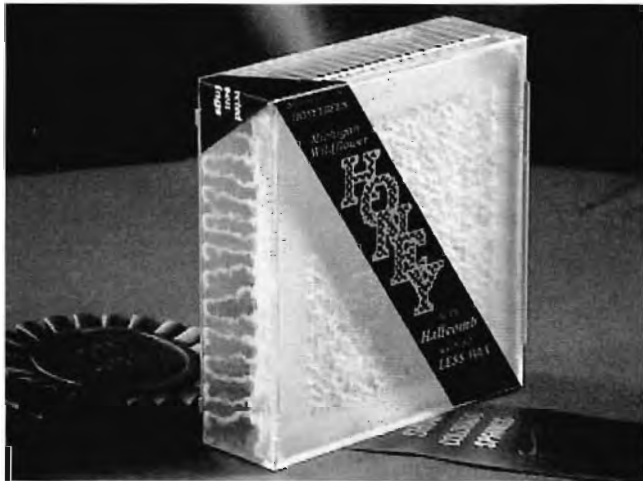


Fig. 7: Individual finished Hogg Half Comb Cassette.

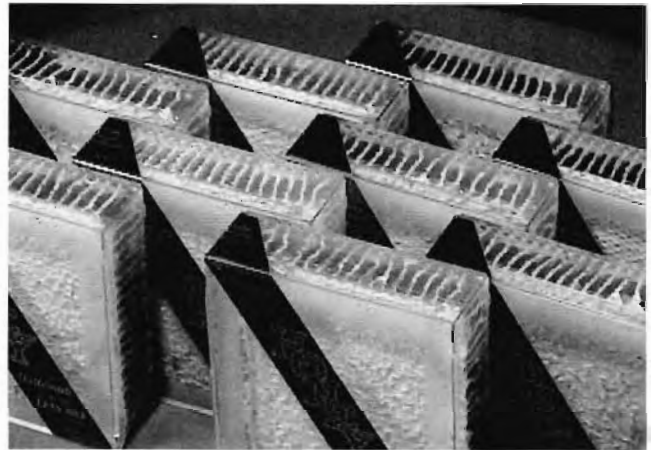


Fig. 8: Several Hogg Half Comb Cassettes labeled and ready for market.