

Observation Bee Hives¹

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The use of observation bee hives continues to interest a variety of people. This is not surprising, as the observation hive is one of the primary research and educational tools in apiculture. It is both educational and entertaining. Observation bee hives can be used to enhance public relations and marketing programs.

Observation bee hives can be temporary or permanent. Temporary observation bee hives that are used for a demonstration, a class presentation, or a trade show need to be mobile and easily transportable. These hives contain a few frames of bees that will be housed in the observation hive only briefly and returned to their managed hives when the event is over. Permanent observation bee hives generally are much larger, can contain four or more frames of bees, are designed not to move, and have a semi-permanent opening through which the bees can enter and exit the hive.

Both permanent and temporary observation hives can be closed or open. Open hives provide a way for the bees to exit and enter via some type of enclosed runway. A closed bee hive does not have a way for the bees to enter and exit. Permanent observation hives generally are open. Mobile observation hives that are used for a short event most often are closed; however, sometimes mobile hives that are at a location for a longer time can be opened.

Although its appeal is universal, the observation bee hive may not always be the best choice of exhibit. This is because a great deal of time and energy is needed to set up a hive and keep it going. Initial installation is usually

problem-free, but maintenance can be expensive and time consuming, especially if the hive is to be used as a permanent display for the general public.

The small size that makes observation bee hives useful for education also makes them relatively unstable when compared to full-sized colony hives. Even the largest units of four frames still only represent a portion of a full-sized colony. Because they are so small, observation hives usually do not survive major fluctuations in either population size or food availability. Beekeepers who have attempted to keep marginal colonies healthy and viable long-term can report a long list of potential problems, including swarming, queenlessness, starvation, and invasion by diseases, pests, and parasites.

Building an Observation Hive

Many styles of permanent and mobile observation hives currently are available from bee supply vendors. There are also plans available for those who wish to save money and construct their own observation bee hive. A very simple and inexpensive plan for a one-frame, portable observation bee hive that can be taken to events was developed by Dr. James E. Tew with the Cooperative Extension System, Auburn and Ohio State Universities. These plans can be modified and used to build a semi-permanent hive housing more than one frame.

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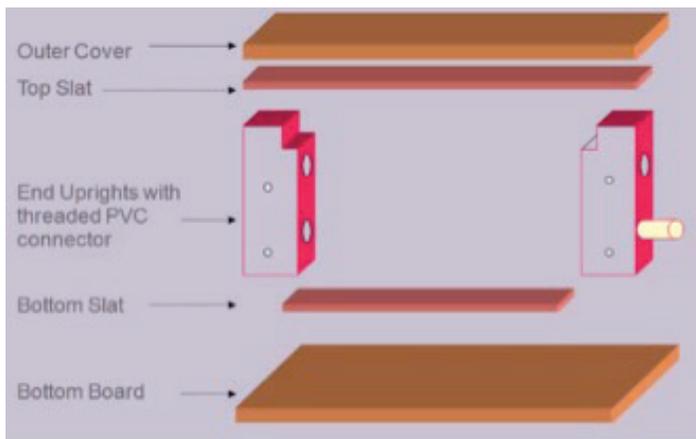


Figure 1. Simple plans for an observation bee hive. More detailed plans can be found at: http://www.mediafire.com/view/mikw31dqdd0jsjh/A_Plan_for_a_Very_Simple_Observation_Hive1.doc
Credits: Developed by Jim Tew; used with permission.

The sides of this observation hive are plexiglass (regular window glass is not recommended for public displays). The base of the observation hive is wide, providing good stability, and there is an optional runway for bees entering and exiting the colony.

This mobile observation bee hive is designed to be taken to the location of a permanent colony and loaded with frames and bees from the colony. A frame from the permanent hive is selected and hung by its ears from notches sawn in the main wooden frame. A “bee space” of exactly three-eighths of an inch must be conserved around the frame’s sides, top, and bottom. If the space is too small, the bees will glue the frames to the sides with propolis; too large, and they will build comb in the gap.

More extensive plans for observation hives are available in the following publications:

- Blackiston, Howland. *Building Beehives For Dummies*. Hoboken NJ: John Wiley & Sons (2013)
- Pisano, Tony. *Build Your Own Beekeeping Equipment*. North Adams MA: Storey Publishing (2013)

Observation Hive Maintenance

The following tips are provided for those who wish to maintain observation beehives:

1. For every observation hive, always maintain at least one full-size colony as a backup. It is advisable to have an identical observation bee hive in reserve that can be switched easily with the original one if problems develop.
2. If the hive is open, be sure the entrance is located away from people who will be viewing it. Locate the outside entrance away from any pedestrian traffic. Consider posting a warning sign near the entrance.
3. Make sure the bees have enough food if the hive is going to be closed for any period of time. This is especially true if the hive is to be used at an event where feeding it may not be possible.
4. Do not expose the frames or hive to direct sunlight. If the event is outdoors, bring a privacy curtain to shade the hive.
5. Be cautious when transporting the observation hive. Make sure it is secure and will not fall over and crush any bees. Place a privacy curtain over the hive during transport to alleviate bee stress.
6. Make the entrance tube as short as possible. Ensure the exit to the outside is as straight as possible. Curves in entrance tubing are also potential problem areas because dead bees can accumulate at bends, thus blocking the entrance. If the entrance tube is very long, bees will exit, but may not find their way back. To ensure that the bees learn how to exit and enter, it is best to train them slowly over time by gradually lengthening the entrance-exit tube.
7. Design the hive entrance so that it can be closed easily. Often slots are cut in the runway so that a vertical piece of tin can be inserted and block the exit to the outdoors. This provides an easy way to move a hive for short-term portable display or switch it out when problems develop.
8. Before taking an observation hive to a location, verify with the event sponsors that there are no liability issues with having live bees on site. If there are possible issues, you may be required to have liability insurance to cover any problems. You may want to have an alternative available. This can include, for example, a photograph-based teaching hive.
9. Make sure the hive is stable and will not fall. Consider fastening it to the table with screws, clamps, or other fasteners.
10. Provide adequate space around the observation hive for unobstructed viewing. Consider placing the hive in the center of a table beyond the reach of children who may want to tap the glass. Use the buffer space to enhance the hive display. Fill it with educational material about

what visitors should look for in the hive, or display beekeeping equipment like smokers, hive tools, and bee brushes.

11. Examine permanent observation hives at least once a week to monitor population and food supply and to look for problems. Often bees in observation hives will be unable to do a complete cleaning job, so the beekeeper must remove accumulated dead bees to keep the hive looking well-tended. Other issues to monitor for include crowding and depopulation and their offshoot problems. Sometimes a hive may become overcrowded as a result of spring buildup. If there are too many bees in the hive, visitors may not be able to adequately see the brood nest. If, on the other hand, the hive is left underpopulated after swarming, there may be too few bees to care for the brood. Swarming may also leave the hive without a queen. Maintain a good balance between observation hive volume and number of bees to ensure the health of the population and the best possible display.
12. Several beekeepers may be assigned the responsibility for maintaining a permanent observation hive over time, but usually it is simplest and best to have just one individual who is in charge and has the final say.
13. If there is any doubt about an observation bee hive's condition, its bees, frames, and queen should all be replaced. The fastest and most efficient way to do this is to have a backup observation hive ready to fill or already filled so that, when a problem arises with the colony on display, the replacement is ready to go. This will provide important continuity to any exhibit. The backup observation hive or colony from which replacement bees are taken must be situated at least two miles from the exhibit area or the bees will return to their old location.
14. Always mark the queen in an observation bee hive so she can be easily located.
15. Feed the colony on a perpetual basis but monitor the food continually to prevent the bees from storing so much food that the queen's egg-laying room becomes restricted.
16. Observation bee hives used as permanent displays in public places should be as large as possible. A larger hive provides a more substantial display, and it sustains a larger population base, better ensuring the colony's survival.

17. Do not enter into a long-term observation bee hive commitment without prior research and/or experience. As a minimum, consult others who have been involved in observation hive projects for their guidance.

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