This technology discusses different methods of bee hive colonization. It explains self-colonization, two methods to catch the swarm, and removing the bees from their nests. This technology is part of a series on hive management derived from the FAO publication ‘Beekeeping in Africa’.

**1. Self-colonization**

The beehive is baited and installed. The beekeeper waits until a swarm of bees comes to settle in the hive. The coming of the swarm is not automatic, but most beehives installed and baited will be colonized. The time required varies widely: the earliest time known is within 20 minutes after installation. Hives sited very close to residential areas may take a long time to attract bees; hives sited near large quantities of flowering plants will generally be colonized rapidly.

1.1 Where does the bee swarm come from?

The honeybee colony is endowed with an instinct which brings about an increase in the number of colonies from time to time. One colony may produce two or more new colonies a year. When a colony in a nest or hive is too populous, the old queen, accompanied by some drones and thousands of young and old workers, flies to a distant place to begin life anew. None of these new settlers will ever return to the old nest. As the bees leave the entrance of the old hive, they fly gyratingly into the sky with a loud hum until they cluster on a tree branch. This cluster is referred to as a swarm of bees.

The swarm hangs there temporarily. Scouts go and find a hollow tree or any suitable place for the new colony. This place may be a hive installed by a beekeeper. The exploratory team of scouts, if lucky, will return with a favourable report to the swarm still waiting on the branch. The swarm will follow the scout into the new-found home.

The first swarm to leave a hive during the season is called the prime swarm. A prime swarm is always accompanied by the old queen and some older workers. Before leaving the old hive, they take in honey and other essential commodities from the old hive, so that when they settle in the new nest, they can begin to build combs within a short time to enable the queen to lay.

After the prime swarm, any other swarm leaving the parent hive is termed a secondary swarm. It is composed of young workers, young drones and a young queen, completely docile and showing little or no sign of aggressivity. (They may begin to show some
aggressive tendencies after six or seven weeks.) The young bees may need the beekeeper’s assistance for some time. Food can be provided in the form of sugar syrup as a supplement to help them. They will survive if no help is provided, but the assistance provided by the beekeeper may enable them to work faster than if they had received no help.

2. Catching a swarm: method I

It has already been pointed out that not all beehives in an apiary are self-colonized. In Europe, Australia, America and some parts of northern and southern Africa (i.e. in temperate climates), the beginning or established beekeeper who wants to set up or expand an apiary obtains colonies of bees by purchasing package bees or buying nucleus or established hives.

Since beekeeping in tropical Africa has not yet developed to the point where queens or nucleus swarms are produced and marketed commercially, the African beekeeper must be bold and fearless in learning how to capture and move swarms from roofs and cavities when his beehives are not colonized voluntarily by bees. He should not wait unconcerned, hoping that swarms may come by themselves.

He must advertise himself in his locality as someone who needs swarms, and he must be prepared to buy them from people who bring them to him. He should consider himself lucky when he finds a swarm and must be prepared to capture it for his empty beehive. He should never be afraid to catch a swarm. Pioneer beekeepers in Ghana catch them, sometimes wearing no protective clothes.

Here are some hints:
1. Study the swarm. Consider what will be required for collecting it. For example, a ladder may be needed if the bees are located high up in a tree, but not if they can be reached while standing on the ground and are supported on a small branch that can easily be cut by a knife or a carpenter’s saw. Also consider whether a hive, a box or a bag will be required. Never keep bees in polyethylene bags. Another important item that may be needed is a match-box to carry the queen bee separately. It should be perforated to allow air to enter. A queen cage is an ideal apparatus if one can be obtained. No smoker is required to collect a swarm. Smoke will only scatter the bees.

2. When bees cluster on a small branch of a tree, it can be cut down and brought home without any problem.

3. If the bees are so high in tree branches that they cannot be reached easily, a ladder can be used to reach them. They can then be shaken into a jute sack or any good container, but before this is done, the queen bee should be captured and placed in the matchbox, which can then be attached to the container and left for some time. The workers will begin to cluster around her, and the container can then be carried to the hive site.

4. If the queen cannot be found easily, shake the bees into the container. After shaking them for some time, watch their movements, especially those flying about. If they fly to the container, this means that the queen bee is within. Wait a while to let most of the workers cluster around her before taking them to the hive.

5. It is advisable to insert a brood comb from an old established colony into the new hive. The queen can then be released and attached to the brood comb. Now shake
the captured swarm into the hive. The old brood comb will make the bees feel “at home” and accept the hive readily. Allow time for all the bees to settle before dressing the hive with the remaining top-bars, and then place the top cover on the beehive.

6. Feed the swarm on sugar syrup or a mixture of two-third honey and one-third water. Stir well and pour into a jam jar or a similar container. Turn it upside down so that the lid of the jam jar stands on the floor. Insert a small piece of wood (the size of a match-stick) between the bottle and the lid and place it inside the hive for the bees.

Then seal off the entrance of the hive. Do not allow the bees to go out for at least 24 hours; otherwise, bees hived in this manner will adopt the hive when the day is cool but can decide to leave if the sun shines brightly.

7. Place a thick bundle of dry grass or dry leaves on the cover if it is metallic, in order to protect the beehive from overheating.

8. Place the hive on a platform. Do not hang this hive, because the least mistake may result in the whole hive tipping over and the contents being jarred. Remember to protect the bees from ants.

9. After 24 hours, the bees can be released by opening the entrance. This should be done in the evening between 5:00 and 6:00 p.m., a time when the queen bee and the drones will never leave the hive. The bees have accepted the hive if they are found carrying pollen into the hive. Do not disturb them.

3. Catching a swarm: method II
Another interesting and simple way to hive a swarm that can be reached from the ground is as follows:

1. Stay away until evening (between 5:00 and 6:00 p.m.).
2. Bring a piece of white paper and a brush or quill with you.
3. Place the beehive directly below the swarm and arrange the top-bars neatly, leaving out only one or two;
4. Holding the paper in the left hand and the quill or brush in the right, brush off some bees from the cluster onto the white paper, drop them into the hive, and replace the last top-bars and the top cover;
5. Acting quickly so that the bees in the hive will not re-join the cluster in the tree, and with the help of the white paper and brush, collect more bees from the cluster, but this time place them at the hive entrance. The first bees in the hive will be “buzzing” their wings, and this will stimulate the incoming bees to join them. Repeat this process until all the bees have entered the hive.

Do not fear this process; the bees are not dangerous at this time of day, nor is their sting painful. The author of this book employs school children between the ages of five and eight to do this work. The children become very enthusiastic and visit the bees frequently.

4. Removing wild bees from their nest: method III
A third method of obtaining bees for the beehive is to remove wild bees from their nest. In attempting to do this, the beekeeper must be sure to wear protective clothes, i.e. bee suit, veil, leather gloves and boots.

Other things necessary to carry to the site are a good smoker, an empty beehive or a swarm catcher, a container to carry honey, tools such as a crow-bar, hammer, saw, mallet, chisel, machete or axe, and thread
or twine (this can be plantain skin or raffia palm).

This work must be carried out late in the evening, after 6:00 p.m. The procedure goes as follows.

1. Fill the smoker with fuel and puff smoke through the bees’ gateway into the nest for five minutes. The bees will rush into the nest and gorge themselves full of honey, if there is enough in the hive. They will then feel too heavy and drowsy to move.

2. Then break open the nest by using the appropriate tool. Puff some smoke at the bees whenever they show any sign of aggressiveness.

3. Locate the honeycombs and the brood combs.

4. If possible, remove only the honeycombs first and put them in a container.

5. Wait about ten minutes. The bees will cluster around the brood combs. There is no need to smoke them again.

6. Remove brood combs and bees together. Do not drive the bees away, but try to collect as many as possible with the hands. They are needed to rear young bees and another queen if the old one is killed in the operation. Place brood combs and bees in the beehive or the swarm catcher.

7. Carry the bees to a new site at least three kilometres away; otherwise, the older bees or the foragers will return to the old nest.

8. Select the following carefully:
   - two or three brood combs fully or partly capped, possibly with some queen cells;
   - one or two brood combs containing young larvae of different ages and possibly with eggs;
   - two combs of unripe or one of ripe and one of unripe honey;
   - one or two combs with pollen; and
   - two empty combs.

9. Attach the combs to the top-bars and tie them securely with twine. Any oversized comb must be trimmed in order to fit the beehive. Be sure to leave 7-mm bee spaces.

10. Now arrange the combs in the beehive in the order listed in 8 above. The purpose of the arrangement is that all brood combs require constant high temperatures, and larvae and pupae need warmth. Honey and pollen combs put side by side will keep the brood combs warm.

11. Shake all the bees into the hive and insert the remaining top-bars. Then cover the hive with its lid and install it on a platform 3 km away. Syrup may be supplied if necessary.

12. Visit the bees the next day. Pay them a second visit on the following day and another a week later. If the bees have started carrying pollen into the hive, this means that they are settled and should not be disturbed. Pollen-carrying suggests that the hive contains young brood which must be fed and also a productive queen.

5. Related/Associated Technologies
   - Beekeeping in Africa. Installation of bee hives (with particular focus on the top bar hive): TECA ID 7291
   - Beekeeping in Africa. Site selection for bee hives: TECA ID 7323
   - Beekeeping in Africa. Colony
management I. Examining the colony and controlling swarming: TECA ID 7328
• Beekeeping in Africa. Colony management II. Dividing, uniting and feeding a colony: TECA ID 7326
• Beekeeping in Africa. Colony management III. Record keeping and nest control: TECA ID 7327
• Beekeeping in Africa. Honey harvesting: TECA ID 7329
• Beekeeping in Africa. Honey and bee wax extraction: TECA ID 7330
• Beekeeping in Africa. Using bees for pollination: TECA ID 7331
• Beekeeping in Africa. Responding to common bee diseases: TECA ID 7332
• Beekeeping in Africa. Choosing and rearing a queen: TECA ID 7333

6. Objectives fulfilled by the project
• Resource use efficiency; and
• Pro-poor efficiency.