

BEE KEEPING AND RAINWATER HARVESTING

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The bee is a well-known insect. It is useful to man in several ways. These include pollination of crops and provision of honey. Bees live in a colony consisting of the queen, workers and drones. Each type of bee has its specific duties. The queen bee, being the mother bee, lays eggs. In the event of the death or departure of the queen bee, another queen is reared using special food called royal jelly.

The workers are female bees that do not reproduce. Therefore they cannot lay eggs. Their main tasks include building combs, cleaning the hive, collecting pollen and nectar and feeding the brood. The brood consists of the eggs, larva and pupa. They also have stings to defend the hive from intruders.

The drones are the male bees. Their duty is to fertilize the queen and ventilate the hive. They have no sting and are usually killed by the worker bees after the queen bee has been fertilized. The queen takes a wedding flight high in the sky followed by the drones and is fertilized as she flies. Then she returns to the hive and lays eggs. With the help of attendant bees, she lays eggs, which are placed in the cells in the combs.

In dry areas of Kenya, bee keeping is favoured by availability of land as a result of low population pressure. The African wild bee is the common type of bee in ASAL of Kenya. This type of bee is well adapted to living in different environments in Kenya, is very hard working, can fly very far in search of food and water unlike the European bee. It is also

drought resistant. In very dry areas where natural water sources are rarely found, bees cannot survive. Even if they are introduced, to a hive, they will swarm when drought comes and they lack water.

Swarming as used in bee keeping means leaving the hive. There are other reasons why bees may swarm. These include;

- Lack of food and water in their surrounding areas
- Sick or infertile queen
- Outbreak of pests and diseases
- Direct sun causing overheating of the hive
- Damage to combs that also damages eggs, larva and pupa due to poor protection of the hive
- Bad odours in the surroundings
- Overcrowding in the hive due to a high population of bees

A bee farmer needs to be aware of all aspects of bee keeping to ensure that they do not migrate to other hives or die.

If there is no natural water source available, the farmer should supply the water to the bees. This water is especially important during the hot weather when the bees bring it to the hive to cool it by evaporation. To provide water to the bees during drought, a container may be filled with water and sticks placed inside it where bees can step on while drawing water. This protects the bees from drowning.

Rainwater harvesting has been done for livestock including cattle, sheep and goats. To diversify bee keeping may also be incorporated in the farming schedule. The

bees will consume relatively little water compared to other livestock. In fact, evaporation alone from a container may account for more water loss than consumption by a colony of bees. Despite the fact that they consume very little water it must be provided nonetheless. Any farmer is able to provide this water in the ASAL. What is missing is intensive training by extensionists and other agents to make bee keeping an income generating activity by farmers living in these areas. Those who have benefited from such training already have modern apiaries (places where beehives are located) stocked with modern hives especially the Kenya top bar hive.

Most farmers are aware of the fact that bees will swarm during drought when they lack water. They therefore tend to place hives around water sources such as earth dams, rock dams, perennial springs and leaking walls of sand dams. Unfortunately, such sites are very few and can only benefit a few people. For more farmers to benefit, a share of water carried home in containers for domestic use should be apportioned for the bees. This involves very little water and can be done with ease.

Likewise, during drought, there are no flowers and therefore the nectar and pollen that bees use is not available. During such times, they still need to be fed. To do this, sugar is dissolved in water in the ratio 1:1 by volume to make syrup. The syrup is put in ajar and placed a few metres from the hive where bees can easily access it.