Egerton Launches Queen Bee Rearing Technology

(/eprofile/18769)
Prof. Paul Kimurto

Egerton University, through the support of the University Counc has launched a Bee Research and Demonstration Unit (BRDU) at Agro-Science Park (/agro-science-park)and the Dryland Research Training and Ecotourism Centre (/drtec) (DRTEC). The Agro-Scien Park will be used as the queen bee multiplication site, while DRT will be used as the upscaling site for farmers in arid and semi-ar lands before expanding it to Mpeketoni Research Station in the future.

The project was launched by Members of the University Council, led by Mr Joshua N. Otieno, to commemorate the World Bee Day marked annually on 20 May. Mr Otieno is also the Chair of the Planning Committee of the Council. One of the key components of the BRDU is the Queen Bee Rearing Technology (QBRT) which involves the process of developing a new queen as the choice of the beekeeper rather than the choice of the bees themselves. Currently, due to very few colonies, hive colonisation is between 20 – 50%, which is too low. This is because there are few queen bees available to lay the workers and drones which constitute 99 per cent of the bee colony.

The QBRT therefore aims to contribute to increased honey production production by increasing honey-bee colonies through innovative queen rearing technologies. This will increase the number of young queen bees per colony, hence raising the number of eggs laid to 1,000 – 2,000 per day. This is because the queen bee has

a life expectancy of 4 – 5 years, after which her laying capacity reduces drastically, which in turn hinders the attainment of the projected 60,000 bees per colony. The QBRT will therefore enable beekeepers to get queens from the Agro–Science Park (/agro-science-park), which will be used to head small new colonies (or nucleus colonies) hence increasing the number of colonies and hives owned by farmers. In addition, this will replace old queens with younger ones and reduce the swarming impulse as well as exchange failing queens with vigorous ones to prevent a failed colony. Large scale queen rearing is central to the process of royal jelly production. The technology requires the use of a moveable comb or a moveable frame hive so that the hive components can be moved in the way the beekeeper wishes to rear the new queens.

Egerton University marked the World Bee Day on 20 May 2021 by launching an innovative technology for rearing que bees to increase quality honey production and pollination services

Role of Bees in the Ecosystem

A bee colony is composed of queens, which lay eggs and produce pheromones to keep the colony together, drones, which are the male honey bees that develop from unfertilised eggs and which mate the queen, and the workers, which constitute 95 per cent of the colony. Workers are the smallest in size, and they develop from fertilized eggs.

Honeybees are critical for the provision of ecosystem services like insect pollination, which maintains wild plant communities and global agricultural production. Insect pollinators, through their mutualistic relationships with plants, are crucial for the reproductive success of several plant species in the natural environment. Roughly, 35 per cent of global crops, including fruits, vegetables, nuts, and other plants that provide food, fibre, drugs, and fuel for humans, are dependent on insect pollinators for reproduction. Economically, insect-pollinated crops have an annual worth of about $14.6 billion, of which $2-3 billion is contributed by wild bees. In addition, pollinators provide indirect benefits in the form of livestock forage such as alfalfa and clover. Pollinators also contribute to aesthetics, recreational values, and cultural activities,

and help maintain ecosystem integrity. The project, which will use the modern Langstroth hives, will help to increase honey production in Kenya from the current 25,000 metric tons by bridging the deficit of 13,0(metric tons of honey per year.

By Paul Kimurto (/eprofile/18769), Bockline O. Bebe (/eprofile/18724) and Joel Masobo (/eprofile/12276).

(Prof. Paul Kimurto and Prof. Bockline O. Bebe are researchers in the Faculty of Agriculture; Mr Joel Masobo is an Egerton University staff member and a bee keeper).

Agro-Science Park (/component/tags/tag/agro-science-park) , Division of Research and Extension (/component/tags/tag/division-of-research-and-extension) , DRTEC (/component/tags/tag/drtec) , **Egerton University (/component/tags/tag/university)**