BEES FOR LIFE

Periodical Report

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Apiculture in India holds significant agricultural, economic, and environmental importance. It involves the rearing of honeybees for honey production, pollination services, and various bee-derived products. India's diverse climatic and ecological conditions support a rich variety of native bee species, each contributing uniquely to agricultural productivity and ecological balance through their pollination services.

The sector provides livelihood opportunities, especially for rural and marginal farmers, contributing to poverty alleviation and rural development. However, apiculture faces challenges such as climate change impacts, habitat loss, pests, and diseases that affect bee health and productivity. Ensuring the sustainability of beekeeping practices is crucial for maintaining healthy bee populations and maximizing agricultural yields through effective pollination.

Government initiatives, along with support from non-governmental organizations and research institutions, focus on promoting sustainable beekeeping practices, conserving native bee species, and enhancing honey quality standards. These efforts aim to strengthen the resilience of beekeepers against environmental and economic uncertainties while safeguarding biodiversity and ecosystem services.

Moreover, apiculture contributes to food security by enhancing crop yields through pollination, supporting agricultural diversification, and promoting environmental conservation by maintaining biodiversity and ecosystem health. As India continues to develop its apiculture sector, there is a growing emphasis on integrating modern technologies, research advancements, and market linkages to enhance productivity, profitability, and sustainability for beekeepers across the country.

Summary

The project is aimed to create livelihood support to marginal farmers that will form part of the conservation initiatives of the organization. Recent studies by CSE shows, Indian Honey is highly adulterated and reveals that the beekeeper is not making any profit due to lowest purchase price given by corporates who indulge in getting natural honey mixed with sugar syrup. The project aims to provide livelihood support; ecosystem services and conservation of native species and guaranteed pure honey

Challenge

Honey, a traditional nutraceutical and foodstuff, serves both as a sweetener and medicinal product. Recent studies have uncovered alarming levels of adulteration even in widely consumed honey brands across India, posing significant risks to public health. The COVID-19 pandemic exacerbated socio-economic challenges, particularly impacting middle and lower-income communities. In response, this project focuses on two primary objectives: providing livelihood support for farmers and ensuring access to high-quality, unadulterated honey for the community.

By supporting local farmers, the project aims to enhance economic resilience and stability within these vulnerable sectors. This includes training in sustainable beekeeping practices, improving honey production techniques, and ensuring fair market access for their products. Simultaneously, efforts are directed towards promoting the availability of authentic, uncontaminated honey to consumers. This dual approach not only safeguards public health by offering safe food products but also strengthens the local economy by fostering sustainable agricultural practices.

Through these initiatives, the project seeks to address immediate socio-economic challenges exacerbated by the pandemic while also tackling long-standing issues of food safety and quality in the honey industry. By promoting transparency and sustainability in honey production and consumption, the project aims to build a resilient community and contribute to improved livelihoods and well-being for all stakeholders involved.

Solution

TIES selects marginal farmers from middle and lower-income families and equips them with beehive boxes containing healthy colonies. These farmers receive comprehensive scientific training and ongoing expert assistance to ensure they adopt ethical and sustainable beekeeping practices. The project's focus is on fostering an increase in the native bee population within the project area, thereby promoting local biodiversity and ecological balance.

To empower farmers economically, the project integrates e-commerce tools, enabling them to directly sell honey to buyers and consumers. This initiative not only enhances their income but also transforms them into entrepreneurs within their communities. Continuous monitoring of the project site ensures that beekeeping practices are adhered to and that the bee colonies thrive under optimal conditions.

By combining sustainable agriculture with economic empowerment and biodiversity conservation, the project aims to create a holistic impact. It not only supports marginalized farmers in securing sustainable

livelihoods but also contributes to environmental conservation efforts by bolstering native bee populations. Through these integrated efforts, TIES strives to foster resilient communities and sustainable ecosystems, promoting long-term socio-economic and environmental benefits.

Long-Term Impact

The project endeavors to provide comprehensive livelihood support to marginal apiculture farmers by equipping them with necessary resources and training in sustainable beekeeping practices. Central to its mission is the conservation of native bee species, achieved through the exclusive use of Native Honeybees, reflecting a commitment to biodiversity preservation. Through targeted efforts, the project aims to bolster the native bee population within its operational area, contributing to the resilience of local ecosystems. By harnessing the pollination services provided by these bees, the project not only enhances biodiversity but also promotes ecological balance and agricultural productivity. A core commitment of the project is to ensure the delivery of pure honey, achieved through rigorous adherence to quality standards and ethical beekeeping practices. By integrating these objectives, the project seeks to foster sustainable agricultural practices, support community resilience, and uphold environmental stewardship, thereby benefiting both farmers and the broader ecosystem.

Meet our new "Beek"

Migdad is our newest beekeeper and he has just started his own apiary two months ago with five beehives and has a plan to establish Twenty-five (25) Beehives within the next year. Migdad is now learning the art of beekeeping from our trainers and his mentor is our youngest beekeeper, Michelle!

Migdad owns less than one acre of land, as his family property and he is a very enterprising farmer, who otherwise is a poultry breeder and also owns a small fish farm. Previously, Migdad was employed with an IT Company. The nationwide lockdown imposed following the COVID-19 pandemic, transformed Migdad into a farmer and now, he is a full-time farmer and adopting Beekeeping is something he always wanted to pursue. In earlier instances, Migdad used to collect honey from wild colonies which were found among the plantations and he wanted to become a Professional Beekeeper. However, there was no proper guidance or help in this direction, until Migdad met with a TIES Team Member few months ago.

TIES initiated their organization's support through the "Bees for Life" programme and provided the first set of Five Beehives to Migdad in the month of January 2021. Ever since, he is undergoing the systematic training programme that will help him to take care of the Bees.

Beekeeping is like an art that is both simple and complicated at the same time, where the beekeeper must understand his bees, learn finer techniques to manage the beehive and ensure good growth and production of honey.

TIES has assigned Michelle who is a teenage beekeeper to mentor Migdad, and they are collaborating amazingly well in this task!

Michelle is a Fifth Generation Beekeeper, who believes that being a Beek is engraved into her DNA. She owns a dozen beehives and was being trained by her Father since the last three years to become a qualified "Beek". She has accomplished two cycles of colony management which includes monsoon care and feeding, colony division and rearing of new queen bees, establishing new colonies with introduced queens, honey collection and management. In the very recent past, Michelle passed the final test of capturing a wild colony and transferring it into a box successfully and now, she has officially graduated as a "Beek".

Migdad the Beek with TIES Project

January 2021: Migdad received Five Colonies from TIES and established the colonies in the vicinity of his house. All the colonies were nursery colonies with three brood chamber frames filled and active queen bees present.

February 2021: Colonies are faring good and the best colony was divided into two in a 4:2 manner with the motive to increase the number of colonies. We expect to collect some honey from all these Beehives this year. The colony growth is excellent, and the honey collection season is about to begin.

Bee's for Life- Getting Stabilized

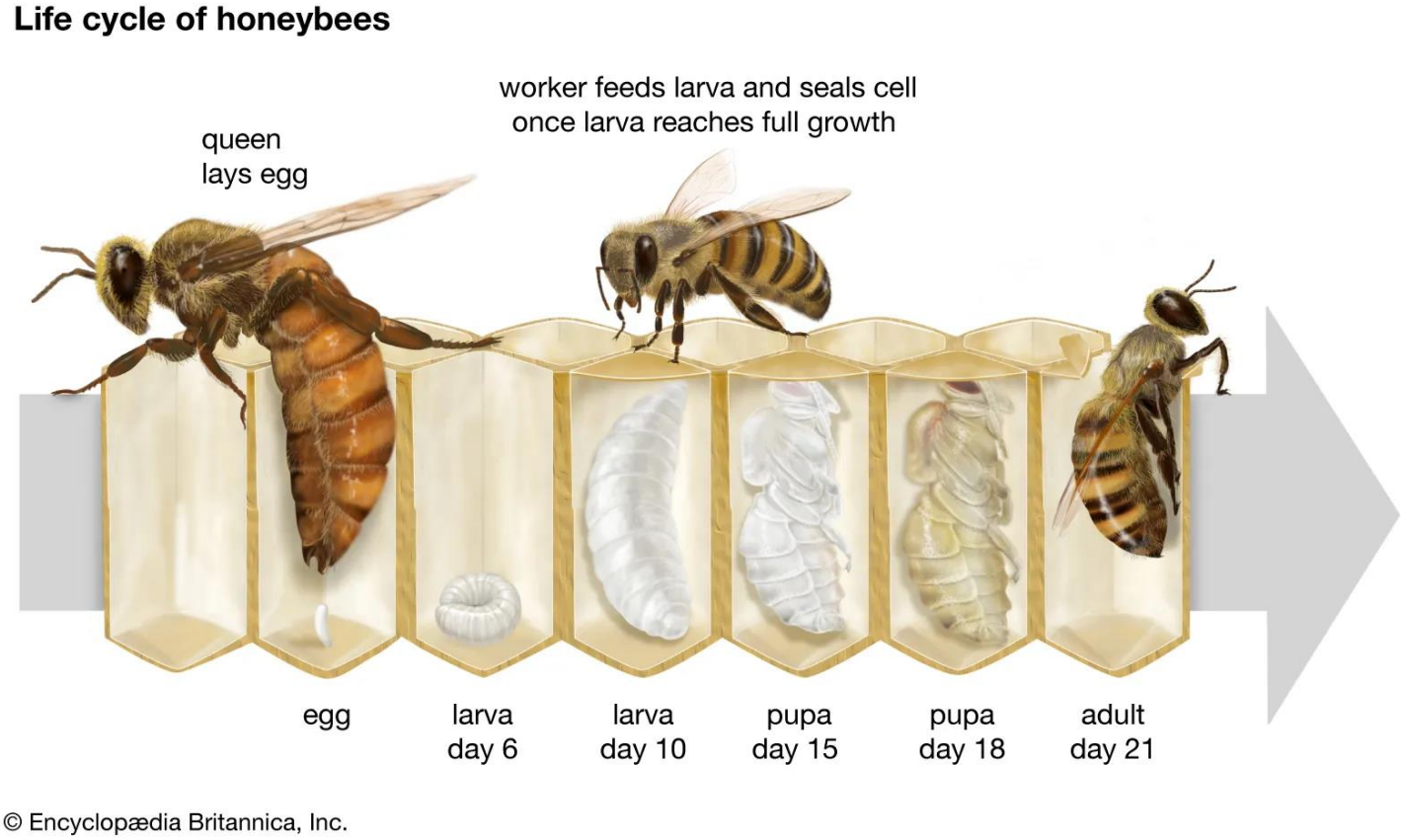
Caring the colonies

As part of *Bees for Life* project, five colonies were provided to Mr. Migdad, one of the beneficiaries. In the beginning, we expected to collect honey from all these hives during the time from mid of March 2021 up to mid of May 2021.However, this didn't materialise as anticipated, which we believe was due to the altering monsoon patterns in the area. There were intermittent rains in Kerala since March2021 onwards which has severely affected the bee colonies. Normally, feeding of the colonies starts from the month of June, but due to the altering climatic pattern, we were constrained to feed the colonies from March(2021), two months prior to the normal feeding phase. In spite of this, two colonies were abandoned due to the drastic climatic change. The remaining three colonies are healthy and feeding of these colonies is still continuing.

Some good news to cheer about here; Migdad is now capable of maintaining his colonies independently!!

Colony division can begin from the mid of October 2021 as per the ongoing conditions. This will aid in retaining the abandoned colonies and thereby enhance the colony numbers.

The *Bees for Life* project now aims to reach a broader spectrum by expanding its activities to the community. As part of this initiative, we have initiated the purchase of 150 bee boxes inorder to increase the number of beneficiaries in the community group.



Bees for Life: Initiative for Conservation and livelihood support

A comb developed at TIES Campus

As the project progresses new endeavors are achieved. You all know our first beek "*Migdad*", yes he is now turned to a stunning beekeeper in all respects. He is able to maintain his bee hives, do colony division, honey collection, everything by himself. But the erratic rain which has hit Southern India has affected the apiculture, not only Migdad but as a whole it has poured extensive damage to the field. Normally the feeding of honey bees ends as the monsoon season ends, but due to the weather conditions prevailing in Kerala, feeding is continuing.

TIES, as part of rooting its project activities, has developed 50 bee boxes during this period. Intensive feeding and special care by our team made the colonies strong; hence colony divisions also continued adding more live boxes to our stock. We have been selling colonies and bee boxes to passionate farmers at nominal price meeting its cost only. Our bigger plan is also on the anvil, providing honey boxes to needy communities with no major regular income, as a livelihood support. Destitute women, orphaned adolescent children, persons with severe and chronic diseases are identified and soon they will be provided with the honey boxes.

Certainly bees are the most beneficial insect in the world which contributes significantly to our biodiversity and crops, but highly threatened due to the increasing pollution and changing land use pattern, driven by the burgeoning urbanized culture. Research programmes are also begun utilizing the limited resources at this moment, in order to address major threats to honey bees and apiculture practices. Five major studies have been launched and regular data collection is progressing from all colonies we established.

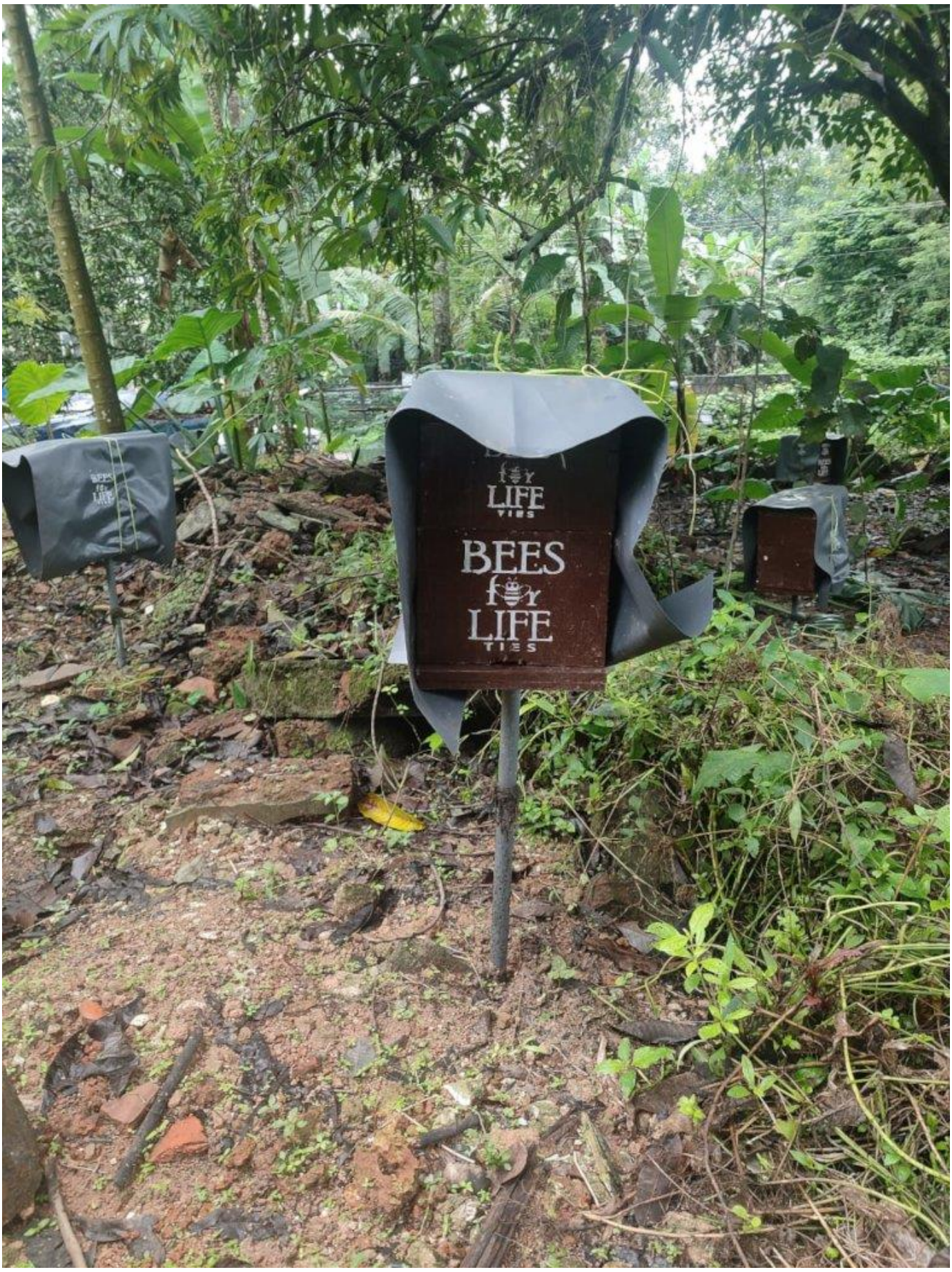
A quality testing lab for honey is also proposed. Support is solicited for these three components of the Bees for Life Project: (1) Expanding Apiculture by providing more live honey boxes to needy communities with proper training, as a livelihood support and to enhance biodiversity conservation. (2). Research projects to

find sustainable solutions for threats like climate change, diseases, predators *etc*. (3). Establishing a quality testing lab for honey, bee wax etc.

Routine checkup and colony feeding

BEES FOR LIFE: Branded Bee Box and Stand

Training assistant in bee hive management



Box placed at our beneficiaries farmland

Bees for Life project to new depths

Training to the beneficiary

Honey bees are one such group that has to be protected due to their myriad of activities that sustains nature. If the pollination service by the Bees doesn't exist many of our farm crops will totally disappear; our biodiversity will be in peril. Commercially and health-wise important products like honey, beeswax, propolis, and royal jelly are produced by these tiny insects. The *Bees for Life* project aims at enabling ecosystems with improved services and providing livelihood support to marginal farmers. We are providing Honey Bee colonies to destitute women, persons with minor disabilities, and poor people who haven't own land. TIES provide special training and complete assistance in apiculture practices till they become self-confident.

This year, long sustained monsoon rain has created great havoc in the rhythm of nature, in this part of the world. Climate change is already established. Hence, artificial feeding of bees continued till the mid of December. Division of colonies stopped by that time and by the mid of January started to collect honey. However, relatively less production is reported in all farms and that also may be due to the climate change impacts. The nodular honey of rubber trees is the main source of honey here. Due to the impact of climate change, leaf falling and sprouting of new leaves happened spontaneously. This has limited the production of nodular honey.

Barring all these challenges we have expended beneficiaries into 10 and expanded active bee boxes into 200+. Each beneficiary was provided with ten bee colonies. A full-fledged research team is working with the farmers, recording diverse kinds of data regarding honey bee colony growth, diseases, the impact of climate change, production of honey, and quality of honey. A climate-resilient farming practice protocol is under incubation and during the coming season, it will be employed. A sophisticated quality testing lab for honey and its products and a mechanized processing unit are on the anvil.

Honey Season

Colonies kept at beneficiaries Rubber plantations

Bee experts inspecting the colonies

Conservation of Native honey bees - fighting against impact of climate change

Artificial feeding for the honey colonies

The torrential monsoon rain prevailing in Kerala has adversely affected the honey bees too. By the end of March, when honey collection ended, feeding of the little bees started. The prolonged rain due to cyclones in Arabian Sea has created havoc among honey bee farmers, as there are possibilities of colony loss due to lack of nectar and pollen. Besides infection due to deadly Thai sac brood virus also reported from many parts. Climate change is the major reason behind these excessive rain and related disasters. Artificial feeding is done to support them from starvation. Every day care is extended to maximum possible boxes through out the state. Utmost care in cleaning and continuous feed support is the only solution for conserving these native species of bees

One of the main aim of Bees for Life project is protect the native honey bee species along with livelihood support for communities. Native honey bees are the best pollinators, hence good for biodiversity conservation too.

In order to support farming community to maintain colonies TIES started several programmes. Scientific and technical consulatation services are provided to all needy farmers and bee keepers. Providing artificial feed to members of Bees for Life project and at a nominal cost to others.

Lack of human personal is a challenge in extending these services to all areas. TIES is planning to train unemployed youth to became volunteers for providing services.

Bees for "Life" - supports livelihood of destitute women

Harvested Honey handing over to Vanaja

Honey Bees' role in pollination and thereby biodiversity conservation is well established. It is also recognized as livelihood support among farmer communities too. Bees for Life Project of TIES has evolved as livelihood support to destitute women and marginalized communities. Vanaja, a widower and cancer patient who is undergoing chemotherapy now has no revenue at all. Her daughters are school children, but their studies, her treatment, and day to day life of the family are supported by philanthropists to an extent. TIES provided 10 honey boxes to Vanaja 6 months back and the family maintained them with the assistance of the apiculturists of TIES. Now the family harvested their first batch of honey this year!! Bees for Life project has changed her life and it's a therapy for her now. Yes, it's TRUE that Bees are for Life!!

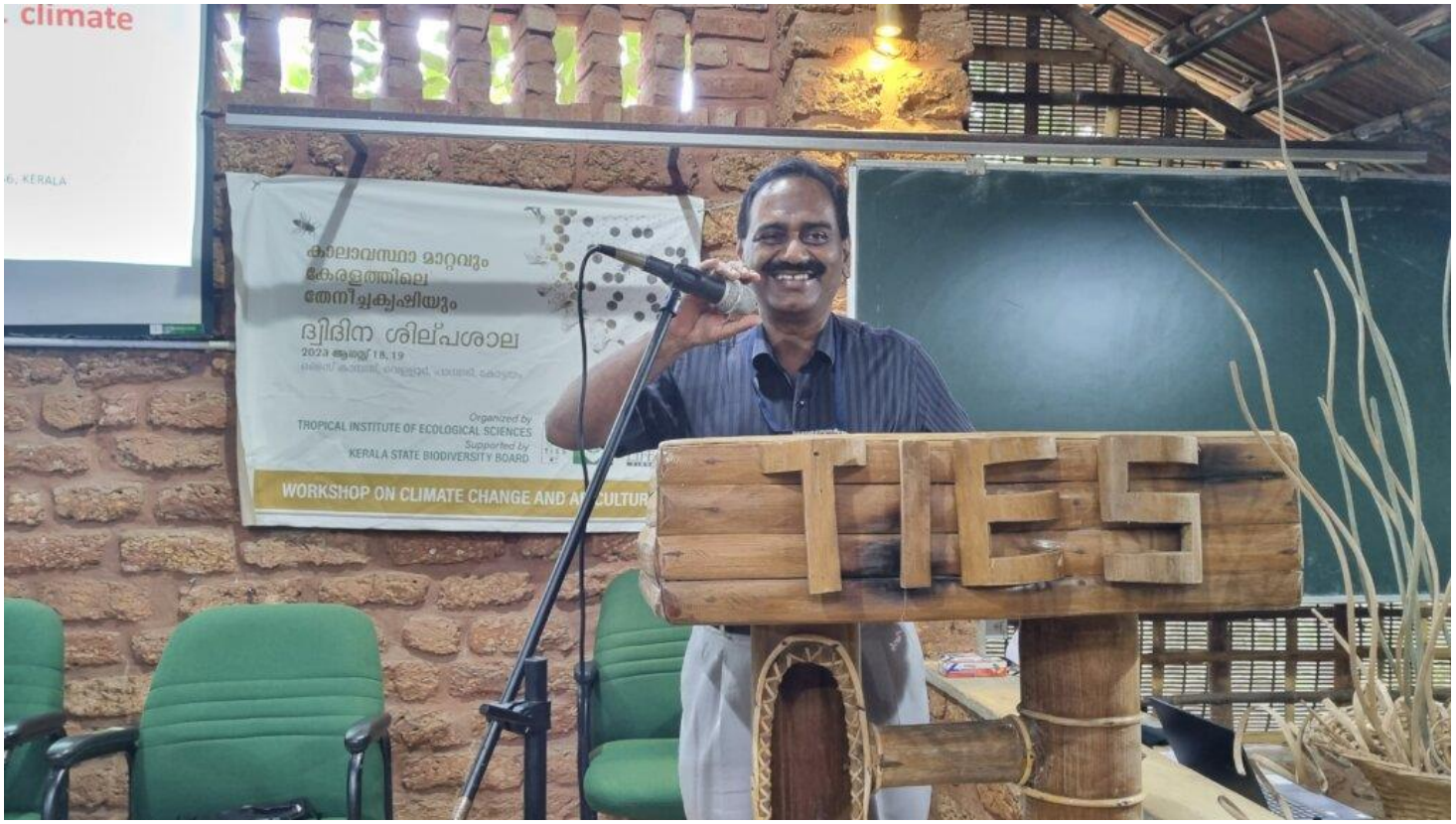
Honey Harvesting

TIES supported Bee keepers for weather change adaptation

Bee Keeping Equipments

Climate change has had a significant and detrimental impact on bee colonies in Kerala this year, resulting in diseases, colony abandonment, and increased pest attacks. These challenges have had a severe and far-reaching impact on honey production, leading to substantial financial losses for beekeepers and ecological consequences. To address these pressing issues, Tropical Institute of Ecological Sciences (TIES) organized a two-day workshop that brought together leading researchers, students, and experienced beekeeping farmers. During the workshop, Dr. Mani Chellappan, Dean of Kerala Agricultural University, provided insights into how changing weather patterns have affected honey bee colonies and offered practical solutions for adaptation and mitigation. Additionally, Dr. A P Thomas, Director of ACESSD at Mahatma Gandhi University, discussed contemporary weather pattern changes and their implications for the ecosystem, including bee populations. Prominent beekeeping farmers such as Mr. Biju Joseph, Adv. Jose Cyriac, and Mr. Joseph Kunju shared their experiences and the practical strategies they have implemented to combat these challenges. Coordinating the open session, Mr. Jose Louies, Chief Advisor of Bees for Life at TIES, consolidated the discussed adaptation and mitigation measures into a protocol aimed at supporting bee farmers in their efforts to combat climate change's adverse effects on bee colonies.

A P Thomas addressing the audience



Dr Mani Chellappan

Community Level Training: Beekeeping for a Sustainable Future

Hands on experience

Honey bees, those industrious pollinators, play a pivotal role in our ecosystem. Their symbiotic dance with plants ensures the pollination of crops and the continuation of biodiversity. But, alas, these tiny heroes face numerous threats, from climate change to habitat loss and pesticide use.

Recognizing the critical importance of bees, TIES has been buzzing into action. Our mission: to spread the word about apiculture and empower communities to become stewards of these vital insects. Why? Because beekeeping isn't just about honey—it's about safeguarding our food supply, preserving ecosystems, and boosting rural livelihoods.

Our beekeeping programs, aligned with the Sustainable Development Goals (SDGs), are creating a buzz in local communities. Through hands-on training, we're equipping individuals with the skills needed to tend to hives, manage diseases, and promote sustainable practices. But it's not just about the technical know-how; it's about understanding the interconnectedness of bees and the environment.

The results speak for themselves. Our efforts have not only expanded the beekeeping community but have also empowered women, who have eagerly embraced this opportunity. By distributing bee boxes and sharing knowledge, we're nurturing a new generation of beekeepers, fostering entrepreneurship, and safeguarding indigenous bee species.

As we forge ahead, let's remember the ancient wisdom that reveres bees as sacred beings. By investing in beekeeping, we're investing in a future where humans and nature thrive together.

So, let's keep the buzz alive—for the bees, for our communities, and for generations to come.

Let me find the QUEEN!!!

Some basics about apiculture

Let see what's happening inside!!

Research and Development studies on Apiculture.

Research studies conducted by TIES have delved into diverse aspects of apiculture, encompassing investigations into honey quality, the impact of climate change, disease dynamics, and studies of floral and faunal diversity. These studies have engaged researchers and students across various disciplines, fostering a collaborative approach to gaining insights into the complexities of apiculture. By integrating perspectives from different fields, TIES has facilitated a comprehensive understanding of how environmental factors, disease patterns, and biodiversity influence apiculture practices. This interdisciplinary research not only enhances our knowledge base but also informs sustainable practices and strategies for supporting pollinators and preserving biodiversity. Through these efforts, TIES continues to play a crucial role in advancing scientific knowledge and promoting practices that benefit both ecosystems and human livelihoods reliant on apiculture.

BEES FOR LIFE PERIODICAL REPORT

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