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Beekeeping in Northeast Region of India

Apiculture, also known as beekeeping, plays a pivotal role in the sustainable development of agriculture, serving as the fifth crucial element for the agricultural development. Furthermore, it stands as the fifth essential input for enhancing yields and ensuring the quality of production in cross-pollinated agricultural and horticultural crops. The Northeast of India boasts abundant floral resources, diverse plant life and an exceptionally favourable climate for honey production. However, the region has yet to unlock its potential as a 'honey capital' in the country, primarily due to the lack of awareness, insufficient skilled labour, limited integration of beekeeping with agriculture, and an inadequate supply of bee colonies for commercial cultivation. In this region, honey is sourced from both wild and cultivated beehives, with an estimated 40,000 beekeepers. A majority of these beekeepers operate at a marginal scale, managing just one or two beehives. Despite the significant role that beekeeping plays in generating employment and sustaining livelihoods, its full potential remains untapped.

APICULTURE, or beekeeping, holds significant relevance in the Northeastern part of India due to its numerous benefits for the region's ecology, economy, and livelihoods. The Northeast, comprising the states of Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, and Sikkim, is a region known for its rich biodiversity and varied agro-climatic conditions, making it an ideal place for beekeeping. Integration of beekeeping with agriculture will not only benefit the farmers with the direct benefits in the form of honey, bees wax, hive products and employment opportunities, but indirectly benefit greatly through increased crop production. Insect pollination is extremely important as only 5% of flowers are self-pollinated and 95% are cross-pollinated. Among 95%, 85% of pollination is brought about by insects. Evidently for increased crop production and sustainable agriculture, it is essential to explore the possibility of planned bee pollination.

This shall be a strategic and sustainable approach that offers a wide range of benefits to the region's farmers, environment, and overall agricultural ecosystem. This integration creates a mutually beneficial relationship between beekeeping and agriculture.

Honeybee's diversity

In the Northeastern hill region, five distinct honeybee species thrive. These include the small honeybee (Apis florea), rock bee (Apis dorsata), giant honeybee (Apis laboriosa), Asian honeybee (Apis cerana), and European honeybee (Apis mellifera). The first three species are wild insect pollinators and cannot be domesticated. In contrast, the latter two, Asian honeybee and European honeybee, are hive bees that can be managed in wooden hives. They are known for their industrious nature and adaptability to human interaction. These bees can be relocated as needed, exhibiting similar pollination behavior. The effectiveness of honeybee pollination depends on factors such as colony strength, colony number, shifting schedules, hive

Training cum awareness on scientific beekeeping conducted in different states of Northeast region.

placement, weather conditions, competition from other crops, and crop attractiveness.

Within the Northeast region, a distinct subspecies of the Asian honeybee, Apis cerana himalaya, exists, differing from Apis cerana in the Northwest Himalayas and Apis cerana indica in South India. Furthermore, this subspecies exhibits three locally adapted populations or ecotypes corresponding to (1) the Naga and Mizo hills, (2) the Brahmaputra valley and Khasi hills, and (3) the foothills of the northeast Himalayas. These ecotypes vary in several biological and economic characteristics. The region's abundant forests, agricultural resources, and horticultural crops make it an ideal candidate for beekeeping development.

Integrating apiculture with agriculture in Northeast India offers numerous benefits, such as increased agricultural productivity, income diversification, environmental preservation, and sustainable farming practices. By endorsing and facilitating this integration, the region can harness beekeeping's potential to enhance farmers' livelihoods and contribute to agricultural sustainability and biodiversity conservation.

Constraints in Beekeeping

The Northeast region boasts immense potential for the advancement of beekeeping, thanks to its abundant natural resources, diverse landscapes, and rich cultural heritage. Despite the numerous opportunities, several challenges must be addressed, including:

- Inadequate infrastructure for the production of genetically superior queen bees for beekeepers.
- Limited technical expertise for effective bee colony management and maximizing honey production.
- Insufficient awareness of the benefits of beekeeping for crop yield improvement through pollination.
- The need for research and strategies for disease management and control in bee colonies.
- A lack of financial support from institutional sources.
- Limited consumer awareness regarding honey and its related products.
- Poor quality control measures in honey production.
- Ongoing deforestation.
- The indiscriminate use of insecticides, pesticides, and weedicides.
- The impact of global warming and unforeseen climatic changes.

Opportunities

The potential for beekeeping development in Northeast India is vast and offers a range of opportunities, including:

- *Diverse Agro-Climatic Conditions:* The region's varied agro-climatic conditions create an ideal environment for the growth of beekeeping.
- *Rural Empowerment:* Beekeeping presents significant self-help potential for rural communities, tribals, small and marginal farmers, and landless laborers. It opens doors to various opportunities, such as:
- Honey, with its high nutritional value, can provide a source of cash income.
- Beeswax, valued at twice the price of honey, is in high demand.
- Other products like bee-collected pollen, propolis, bee venom, and royal jelly are several times more valuable than honey and beeswax.

Bee Pollination Services: Offering bee pollination services to farmers is a mutually beneficial endeavor, increasing crop production while bolstering honeybee productivity—essentially a dual-benefit service.

Processing and Value-added Products: Beyond honey, there's a wealth of value-added products derived from bee by-products, presenting additional avenues for development and revenue generation.

Strategies for development of beekeeping in Northeast India

To promote beekeeping as a significant and sustainable source of income for the rural poor, landless labourers, marginal farmers, and other disadvantaged groups, especially the poverty-stricken tribals in the Northeastern region, the following strategies can be implemented:

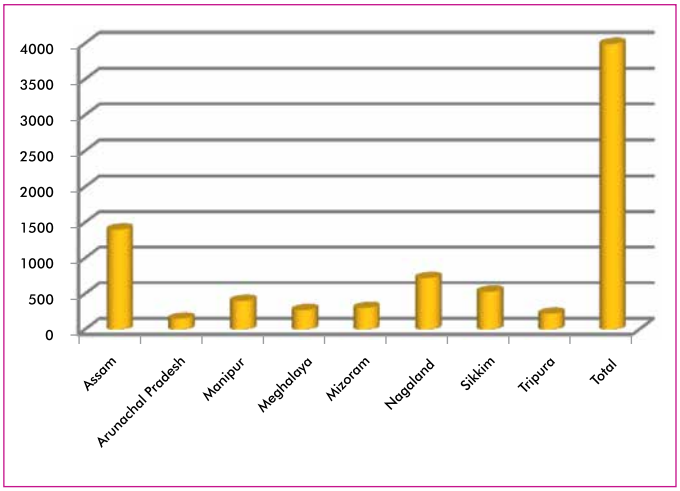
- ***Encourage Organic Beekeeping:*** Provide support and incentives, including financial assistance, to established beekeepers to adopt organic beekeeping practices.
- ***Establish Commercial-Scale Beekeeping:*** Identify and develop commercial-scale beekeeping operations in the most favourable and natural habitats within the region.
- ***Develop a Systematic Marketing Network:*** Create a well-structured marketing network for organic honey and other hive products to facilitate their distribution and sale.
- ***Raise Awareness through Media:*** Emphasize the significance of honey production through extensive coverage in print and electronic media to promote beekeeping.
- ***Conduct Workshops:*** Organize specialized workshops dedicated to educating beekeepers on the methods and benefits of organic honey production.
- ***Foster Collaboration:*** Promote collaboration and coordination among beekeepers and research and development organizations operating in the region.
- ***Implement Buyback Policies:*** Initiate buyback policies through beekeeping cooperative societies and other honey trading organizations to ensure a fair and sustainable market for beekeepers.

Government support for beekeeping in Northeast Region

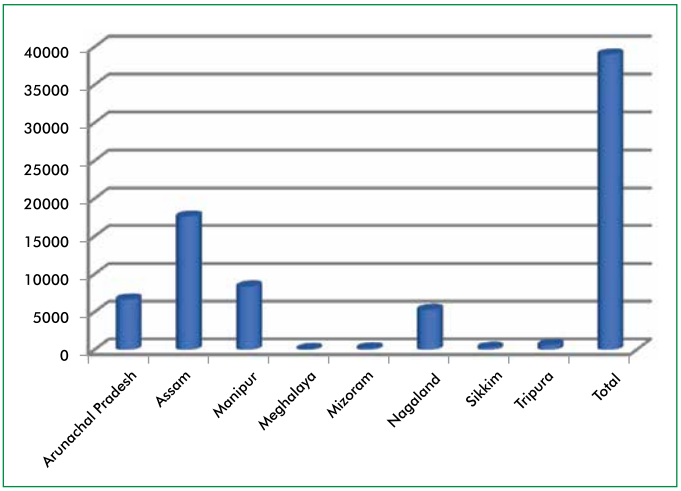
The Government of India has initiated the "National Beekeeping & Honey Mission (NBHM)" with a budget of ₹ 500 crores to promote scientific beekeeping as part of the Aatma Nirbhar Bharat Programme. The NBHM comprises three Mini Missions:

Mini Mission-I: Focused on enhancing crop production and productivity through scientific beekeeping. Initiatives include setting up beekeeping centers, capacity building, infrastructure development, training facilities, honey testing labs, and empowering women in beekeeping.

Mini Mission-II: Concentrates on post-harvest management, including collection, processing, storage,



Honey Production in NE States, mt (2021-22)



Number of Honeybees colonies registered from NE States on Madhukranti

marketing, and value addition of bee products.

Mini Mission-III: Aims to generate research and technology suited to various regions, states, agro-climatic conditions, and socio-economic contexts.

The NBHM operates through project-based interventions. Northeastern states receive 90% support, while government agencies in these states receive 100% assistance, benefiting individuals, institutions, organizations, cooperatives, self-help groups, and various other groups involved in beekeeping activities.

Status of beekeeping in NE Region

- The Northeastern Region, blessed with rich flora and fauna, offers an ideal habitat for honeybees due to its moderate climate and lush vegetation. This region, comprising both hills and plains in the North-Eastern Himalayas, supports various economically significant honeybee species.
- Prominent honeybee species adapted to the Northeastern states' agro-climate include Apis cerana (Gharasia Mow), A. dorsata (Bor Mow), A. florea (Punpuni Mow), and the Stingless bee (found in the hills of North East India). Apis cerana, a vital indigenous bee, predominantly reared by beekeepers, holds a special place in the mountain communities' natural heritage. Among the states, Assam leads the way in beekeeping.
- The honey production in the Northeast region is about 3990 Metric tons during 2021-22.
- The Total number of honeybee colonies registered on *Madhukranti* portal from NE States as on date 06.10.2023.

Projects sanctioned under NBHM in NE States

NBHM aims for the overall promotion and development of scientific beekeeping in the country which is being implemented through National Bee Board (NBB). The following projects have been sanctioned in NE States under NBHM during 2020-21 to 2022-23.

Assam: Some projects of Assam have been sanctioned to the implementing agencies under NBHM during 2020-21 to 2022-23. The amount sanctioned to the agencies is ₹ 1136.33 Lakhs and fund release to the agencies is ₹ 902.75 Lakhs.

Arunachal Pradesh: Projects have been sanctioned of the Arunachal Pradesh State to the implementing agencies under NBHM during 2020-21 to 2022-23. The amount sanctioned to the agencies is ₹ 288.3 Lakhs and fund release to the agencies is ₹ 183.18 Lakhs.

Manipur: Projects have been sanctioned of the Manipur state to the implementing agencies under NBHM during 2020-21 to 2022-23. The amount sanctioned to the agencies is ₹ 132.59 Lakhs and fund release to the agencies is ₹ 84.04 Lakhs.

Sikkim: Projects have been sanctioned of the Sikkim state to the implementing agencies under NBHM during 2020-21 to 2022-23. The amount sanctioned to the agency is ₹ 21.74 Lakhs and total sanctioned fund release to the agency.

17 Districts of NE States have been allotted to NAFED and NDDB for formation of FPOs of Beekeepers/ Honey Producers under the scheme entitled "Formation and Promotion of 10,000 new Farmer Producer Organizations (FPOs)" of Govt. of India.

For further interaction, please write to:
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