

Sustainable livelihood security through apiculture in the tribal tracts of West Godavari district of Andhra Pradesh

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*In the mono-cropped tribal dominant villages of West Godavari district in Andhra Pradesh, collection of honey from wild bee colonies has been a major source of income during the non-cropped rabi season. This skill of collecting honey has been on a decline among the tribal youth over years. In order to ensure sustained livelihood security to tribal farmers during the lean months of the year, an ICAR project under Tribal Sub Plan (TSP) was launched by the Krishi Vigyan Kendra (KVK), West Godavari (V R Gudem) covering 11 villages in 2 tribal mandals viz. Velerupadu and Buttaigudem in convergence with ITDA and an NGO Raithu Nestam. The villages were selected mainly based on the abundant forage availability. Three skill training programmes on all aspects of bee keeping were organized by the KVK and the trainees were provided with Italian bee (*Apis mellifera*) bee hive boxes (2 each), Indian bee (*Apis cerana indica*) bee hive box (1 each), comb foundation sheets and 4 honey extractors per cluster. Regular monitoring visits were made to handhold the tribal youth and to clear doubts if any on hive maintenance. In collaboration with ITDA, K R Puram, 9 cluster groups were formed and together these clusters were registered as Giridhara Honey Producers Society for production, marketing of honey and strengthening of bee keeping. This successful intervention in tribal areas ensured an average additional earning of ₹19,000 per year to each tribal family. This success has triggered enthusiasm among tribal youth who have been expanding the activity by the division of the bee colonies. Support in the form of regular training, handholding for maintenance of colonies, value addition and provision of market linkages in the future will strengthen this entrepreneurial activity and ensure sustained livelihood security to the resource poor tribal youth of West Godavari district.*

Keywords: Apiary, Livelihood security, Tribal sub plan, West Godavari

THE coastal district of West Godavari in Andhra Pradesh has 2.8% of total population (Census 2011). The two mandals of the district, viz. Buttaiahgudem and Velerupadu have villages with predominance of tribal population to an extent of 90-100%. Majority of the tribal farmers are small and marginal and they do mono-cropping of paddy, cotton or pulses on their red sandy loam soils. Cashew is the predominant horticultural crop in these tribal tracts. Their average income ranges between ₹28000-36000 per acre per annum. Small landholding size and traditional technology are no longer able to meet the rising demands of this tribal population. Forest resources are also very rapidly declining due to huge industrial demands and ever-increasing household needs. The collection of honey

from wild bee colonies which has been one of the income sources for tribal families during lean periods of agriculture i.e., during November to March is slowly declining as the skill of identifying the wild bee colonies and honey extraction is not inherited by tribal young farmers. Moreover, fire and smoke that are used to rid the bees from their nests for collecting honey from wild can destroy the entire colony and can also ignite wild fires. The honey and wax obtained from such a practice are of low quality. In this context, Krishi Vigyan Kendra (KVK), West Godavari under Dr YSR Horticultural University-initiated activities for promoting apiary among tribal youth as it is a cost effective, eco-friendly and gender friendly enterprise that requires minimum land ownership to operate and has the potential to

alleviate the socio-economic conditions of the people via full time or part time engagement besides providing ecological services like pollination. Bees provide a plethora of products (honey, wax, pollen, royal jelly, propolis, venom, etc.) that a small-scale farmer can sell from a single farm enterprise. These products can also, with minimal processing, be 'transformed' into value added products.

Interventions by the KVK, West Godavari to promote apiary in tribal villages

Under the ICAR-Tribal Sub Plan (TSP) project entitled 'Introduction of apiary in tribal villages for enhanced income and economic security', preliminary visits were conducted by KVK staff in collaboration with ITDA, K R Puram and Rythu Nestham, an NGO in tribal mandals to select suitable sites for honeybee foraging. The project was successfully implemented in two tribal mandals viz. Velerupadu and Buttaigudem. A total of 3 villages were covered in Velerupadu mandal (Katkuru, Koida and Kacharam) whereas 8 villages were covered in Buttaigudem mandal (Aliveru, Chinnajeedipudi, Yerraigudem, Pandugudem, Bandarlagudem, Kamaiahkunta, Lankapalli and palakunta). The villages were selected mainly due to abundant forage availability like tamarind, neem, soapnut, eucalyptus, pongamia, tobacco, cashew and palmyrah etc. A total of 100 tribal youth were selected and three 6 day long trainings were conducted. During the training, aspects like types of bees, classification, bee hive structure and management, life cycle of various categories of bees, parts of bee hive box, accessories required for honey bee keeping and honey extraction were covered. After successful completion of these vocational training programmes, the trainees were provided with the following critical inputs:

- Italian bee (*Apis mellifera*) beehive boxes – 2, Indian bee (*Apis cerana indica*) beehive box– 1 and Comb foundation sheets – ½ kg for each trainee.
- Honey extractors (*A. mellifera* – 2 and *A. cerana* - 2) per cluster.

Regular follow up visits were also conducted by the scientists of KVK to the apiary units and advice was also provided for effective maintenance of the bee hive boxes. The following is the summary of various interventions undertaken by the KVK to promote apiary in the tribal villages of West Godavari.

- A total of 15 trainings were conducted under RKVY and ICAR – TSP and 350 farmers and rural youth including women were imparted with beekeeping training from 2015-16 to 2019-20.
- During 2015-16 KVK-Venkataramannagudem initiated apiary unit consisting of 13 *Apis mellifera* bee hive boxes and one honey extractor with the financial assistance of 'Rashtriya Krishi Vikas Yojana' for training and demonstration purposes.
- A long (25 days) skill training on beekeeping conducted under ASCI during 2018-19.
- One State level seminar on 'Awareness, motivation and technology transfer for development of beekeeping in Andhra Pradesh' was organized.
- Three physical trainings and one virtual training were conducted during 2020-21 and 2021- 22 with funding by National Bee Board (NBB) for the promotion of scientific bee keeping.
- Fifty apiary units were established through training and provision of critical inputs of apiary under the ICAR funded project 'Attracting and Retaining Youth in Agriculture (ARYA)'.
- Integrated Bee Keeping Development Center (IBDC) / Center of excellence in bee keeping was established in the KVK with financial support of ₹87.96 lakhs by National Bee Board (NBB). As a part of this project, honey quality control lab, disease diagnostic lab, manufacturing unit of beehives, beekeeping equipment and tools, information Centre and honey processing and marketing centre were established.

Impact of the training programme and handholding

Tribal youth and women gained hands on experience on bee keeping through the trainings,

Success story of an apiary entrepreneur

Name of the farmer: Akkina Satya Chaitanya – Sowjanya bee honey

Technological intervention

Under the ICAR-ARYA project, KVK (V R Gudem) imparted training programme on scientific beekeeping and supplied *A. mellifera* bee hive boxes (4 nos.)

Output of the intervention

- 700 bee boxes are maintained which yield, 4 tonnes of honey per month
- Established 11 outlets in villages viz., Venkataramannagudem, Narayanapuram, Tadepalligudem, Eluru, Dwarka, Tirumula, Akivedu, Bhimavaram, Tanuku, Dubcherla and Ravulapalem.
- Retail honey is sold locally @ ₹350 per Kg
- Bee colonies with box are sold @ ₹4500 per unit
- The farmer is earning a net income of ₹12,00,000 per year

Future plan of action: To increase his bee colonies to 2000 and to establish some more outlets to cater to consumers.



demonstrations and exposure visits organized by the KVK, West Godavari (V R Gudem). The apiary-based entrepreneurship activity ensured an average additional net income of additional income @ ₹19,000 per year to each tribal family. The existing apiary units can be further scaled up through the division of bee colonies and the success thus has come to stay. Support in terms of feeding, protection from ants and termites as well as making availability of comb foundation sheets are to be provided to these beekeepers for strengthening the activity. The apiary unit established at the KVK was strengthened from 13 bee hive colonies to 120 and honey (on an average 700 kg per month) and bee colonies are sold to farmers and aspiring bee farmers. KVK, Venkataramannagudem in collaboration with ITDA, K R Puram formed 9 individual cluster groups of bee keepers covering 11 villages and these individual cluster groups in turn formed an association of honey producers with the name 'Giridhara Honey Producers Society' in ITDA, K R Puram for production, marketing of honey and strengthening of bee keeping. Branding of the product and FSSAI registration has been completed. Beekeeping was proven to be an alternative livelihood option with potential of providing alternative income security to smallholder tribal farmers living in forest area of Dantewada district of Chattisgarh. Of the 500 beneficiaries of 16 villages who were taken as a unit for

analysis to check the enhancement of farmer's income annually, 470 beneficiaries were found highly benefitted by bee keeping which brought tangible change in their living standards. In a study by the scientist of the KVK (West Godavari), it was observed that age, education, social participation, economic orientation, market orientation, extension participation and knowledge level were positively and significantly associated with extent of adoption of apiary technology for income generation.

SUMMARY

Apiary has been established through training and demonstration as a viable and sustainable source of income to tribal farmers of west Godavari district of Andhra Pradesh. The KVK, West Godavari ensured the success of this entrepreneurial activity through continued hand holding, timely advisory and establishment of market channels. Skills related to multiplication of bee colonies, preparation of bee boxes, extraction and packing of byproducts like propolis, bee wax, royal jelly would further strengthen and diversify the apiary enterprise. There is an ample scope for encouraging production of organic honey in interior tribal areas where there is minimal use of chemical inputs in agriculture and horticulture.

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Contributions of KVKs at National Level

- **Ushering pulses revolution through cluster frontline demonstration (CFLD)** - Pulses production enhanced from 17.70 MT (three years average during 2013-2016) to 27.80 MT in 2022-23.
- **Doubling farmers income through farm-based interventions** - Documentation and analysis of 75000 cases.
- **District agriculture contingency plans for 623 districts** - Ready reckoner for line departments and farming community to manage various weather aberrations.
- **Crop residue management (CRM) in 60 districts of 4 states** - Reduction (52%) in crop residue burning incidents (2021) as compared to base year 2016.
- **Scaling of IFS models - 64 IFS models for 26 States/Uts**: Thirty one bankable IFS for 22 States - 39% increase in net income of households and dietary diversity score improved by 8.57%.

New interventions to reach the unreached

Scheme	Achievement
Farmer FIRST : Farm, Innovations, Resource, Science and Technology	20 states, 51 centres, 114 villages, 48921 farm families
ARYA (Attracting and Retaining Youth in Agriculture)	100 KVK, 65661 youths trained, 14878 enterprises established
KSHAMTA (Knowledge Systems and Homestead Agriculture Management in Tribal Areas)	26800 demonstrations. 125 tribal districts, 2 lakhs tribal farmers trained
VATICA (Value Addition and Technology Incubation Centers in Agriculture)	25 KVKs promoting value addition and technology incubation
NARI (Nutri-sensitive Agricultural Resources and Innovations)	Family farming, nutri-thali, establishment of nutri-smart villages, gender empowerment for health and nutrition