



Indian Farmer
Volume 9, Issue 08, 2022, Pp. 336-339.
Available online at: www.indianfarmer.net
ISSN: 2394-1227 (Online)

ORIGINAL PAPER



First Successful Venture to Harvest “Alfalfa” Honey in Leh, Ladakh.

Bashir A Rather*, Dorjay Namgyal**, Mehraj-ud-din Sofi** and Nadiya Khaliq**

*Mountain Research Centre for Field Crops (MRCFC), Khudwani, SKUAST-Kashmir.

**High Mountain Arid Agricultural Research Institute (HMAARI),
Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir,
Stakna, Leh.

Corresponding author: entobashir@gmail.com

Article Received: 03 August 2022

Published Date: 07 August 2022

ABSTRACT

This study was aimed to explore the feasibility and performance of beekeeping in this harsh climatic region. Honeybee colony performance is their ability to defend the colony and also to effectively collect nectar and pollen and thus productivity. Three European honeybee colonies (5 frame) were migrated from Pollination Centre, SKUAST-K, Srinagar to study their performance in respect of increasing colony strength and productivity, at Stakna Leh. Observations were made on the colonies for brood pattern, proportion of worker bees and combs filled with pollen and honey. All the colonies performed better and were categorized as strong colonies (10 frame) and each colony yielded 4.5 kgs of alfalfa organic honey. This it is suggested the region can be exploited to harvest alfalfa organic honey and as an alternate migration site for commercial beekeepers of Jammu and Kashmir.

INTRODUCTION

Ladakh, the cold arid region of India comprises of two districts namely Kargil and Leh and situated at an elevation of 2400 to 4500 m above m.s.l.. It is featured with the combination of both arctic and desert climate condition. That is why the region is known as cold desert. The region is characterized by extreme temperature variations, low precipitation mostly in the form of snow, high wind velocity, sparse plant density, thin atmosphere with high UV-radiation and fragile ecosystem. The temperature often drops down to -30°C in winter. Long harsh winters reduce the cropping season to just four to five months in a year.

Despite the vast geographical area, 62% of the households have less than 1 ha cultivable land. Single-cropping is dominant, as double-cropping is possible only in a limited area falling below an altitude of approximately 3000 m. Majority of the households have small land holding; 49.4% households have less than 0.5 ha land. Wheat and barley are the traditional crops of Ladakh, and continued to be the staple food of the people. In some areas buckwheat is also grown as second crop. Apricot and apple are the two major fruit crops of the region. Almost 23 types of vegetables are grown by farmers in Ladakh region. Seabuckthorn (*Hippophae rhamnoides* L.) is an ecologically and economically important native plant. It grows naturally in Ladakh without much of human interference. However, the region is known for high quality Alfalfa (*Medicago* spp.) which is a rich source of protein and is the backbone of agriculture and animal husbandry industry in Ladakh. It occupies about 22.4% (2290 Ha) of the total cropped areas. The area under this fodder crop is expanding tremendously (Anonymous, 2019).

The alfalfa fodder is also considered a very rich source of pollen and nectar. As such there seemed tremendous possibility of development of beekeeping in Ladakh region due to the existing prominent status of the cropping pattern, diversity and the wide distribution of the alfalfa fodder crop. Keeping these things into consideration, the studies were undertaken to observe the performance of European honeybee (*Apis mellifera* L.) colonies in this region.

BEEKEEPING AS A NEW VENTURE AND LIVELIHOOD SOURCE IN, LEH LADAKH

To explore the feasibility of beekeeping as a new livelihood source for the farming community in the region, the present studies were conducted at High Mountain Arid Agricultural Research Institute (HMAARI), SKUAST-K, Stakna, Leh during June, 2021, the flowering season in alfalfa. Three honeybee colonies of European honeybee (*Apis mellifera* L.) were migrated from Pollination Centre SKUAST-K to Stakna, Leh which is situated at an altitude of 4500m. It was in fact the first trial of observing the performance of bee colonies under cold arid conditions of Leh in response to the directions of National Beekeeping and Honey Mission (NBHM) from National Bee Board, GoI. Each migrated colony cultured in Longstroth hive body was at the same strength (5 combs). They were placed suitably in the campus taking into consideration the harsh climatic conditions like protection from high speed winds, availability of water near the site and the foraging crop. The campus has a very large area under alfalfa fodder crop. The performance of colonies was assessed in terms of colony reproduction, food reserves in the form of pollen and nectar and yield of honey extracted i.e. Colony strength and Productivity, at the end of season during October, 2021. The colony strength and productivity was estimated by opening of hives and lifting of combs to observe the number of combs and proportion of combs covered by the adult bee and brood population. Further the amount of pollen and nectar collected was estimated by observing the proportion of combs filled with pollen and honey (Kasangaki, et al., 2018). All the beekeeping practices like examination of colonies, feeding; hygiene, etc were

followed during the season. The parameters of colony strength and productivity were scored 1 to 3 with details as follows:

S. No.	Adult honeybee pattern assessment	Score
(a)	A comb completely covered by adult bees	1
(b)	Comb with less than $\frac{1}{2}$ of it covered by adult bees	2
(c)	Comb with less than $\frac{1}{4}$ of it covered by adult bees	3

S. No.	Brood pattern assessment	Score
(a)	Comb with >50% of it uniformly covered by both open and sealed brood	1
(b)	Comb with about 50% of it covered by brood	2
(c)	Comb with <25% of it covered by brood	3

The average scores for each of the observations (a-c) were obtained for each colony. The average for each colony were made and then taken as the average performance of that colony (1=Strong; 2=Moderate; 3=Weak).

Similarly the number and proportion of sealed honey in the hive was used to estimate the productivity of the colony as:

S. No.	Assessment of the amount of honey gathered by the bees	Score
(a)	Comb with $\geq 50\%$ covered by sealed honey (High productivity)	1
(b)	Comb with < 25% covered by sealed honey (Moderate productivity)	2
(c)	Comb with $\leq 25\%$ of the combs with sealed honey (low productivity)	3

(Kasangaki, et al., 2018). The studies revealed that the highest average scores were obtained with respect to the colony strength and productivity in case of all the three beehives. All the three colonies recorded maximum number of combs (10) covered with adult bees with greater than 50% covered uniformly by both open and sealed brood. As such the colonies were categorized as strong colonies. The productivity estimation revealed that each colony recorded greater than 50% of every comb sealed with honey and maximum number of combs 5, 6 and 5 were also observed covered by sealed honey in all the three colonies. Each colony yielded 4.5 kgs of pure organic alfalfa honey during the season which was really observed as an unexpected dream under cold arid conditions of Leh Ladakh.

CONCLUSION

Thus, it is concluded that beekeeping have a special advantage in this region where majority of the farmers are marginal land holders and a large area is under horticultural crops like apricot and apple and the major fodder crop like alfalfa. It can also flourish in this region as a livelihood source for men, farm women and rural youth for harvesting of organic alfalfa honey an important source of income, nutrition, and medicine, and other

bee products. Moreover, the migration between hills and plains is a routine procedure adopted by commercial bee-keepers of the state. Thus, this region can act as an alternate migration site for the commercial bee keepers of Jammu and Kashmir. Further, honeybees will also play an essential role as pollinators for agriculture and support agricultural production, forestry, and the maintenance of biodiversity in natural ecosystems in the region. They will also help to combat soil degradation by enhancing the replenishment cycle: more pollination, more seed set, more plants, more biomass returned to the soil, leading to less soil erosion, less flooding, and a more conducive environment for sustainable living.

REFERENCES

Anonymous, (2019). Mission Organic Development Initiative of Ladakh, Policy, Stratgy and Action Plan. Ladakh Autonomous Hill Development Council, Leh Ladakh-194101.

Kasangaki P; Nyamasyo G; Nadeywa P; Kajobe R. (2018). Assessment of honey bee colony performance in the agroecological zones of Uganda. Current investigations in Agriculture and current research 1 (5):122-127.



Plate 1. Apiculture demonstration unit

Plate 2. Exposure visit of farmers to demonstration unit.

Plate 3. Visit of Honb'le VC to demonstration unit



Plate 4. Honey frame removed for extraction



Plate 5. Bottled Alfalfa honey