



## Study on factors effecting honeybee productions in Nangarhar province

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### Abstract

Over recent years some regions of the world have been suffering from an increase in losses of their managed honey bee colonies. Colony losses are not unusual, but the increases in losses reported in some Asian countries have received considerable attention, not least because of the honey bees' role in pollination and the absence of an easily identifiable cause. A number of different factors are considered to be involved and are now being monitored and investigated further such as pests and diseases, bee management, including bee keeping practices and breeding, the environment, including weather, agricultural practices and the use of pesticides and the availability and quality of food sources. Increased monitoring and research are starting to shed some light on the factors involved in recent honey bee colony losses. Aim of this is to Evaluate factors that affecting factors that affecting honey bee productivity. This report focuses on the emerging view that reducing of feed (reduction of flowers), less area facilities, bad climate, security situations, unless of equipments, weak management, lack of technical knowledge in beekeeping, high costs of honey, low economic condition of the country, reactions of the people against bee farms, bad policy of the country, pest and diseases are the key underlying factors which are affected honey bee productivity in Nangarhar, Afghanistan.

**Keywords:** beekeeping, honeybee, honey, disease, quality, production, climate

### 1. Introduction

Beekeeping has been practiced since ancient times and honey has been considered by many cultures as a valuable and precious commodity that is used in traditional rituals, healing or as food [1]. In nearly all countries of the world bees and their products are not only well known and have wide consumer preference, but provide sustainable livelihoods to many small scale farmers and other rural and non-rural people [2]. The exploitation of bees provides a sustainable environmentally beneficial food and income source for rural households in developing countries. Beekeeping has been widely promoted in many countries as a major contributor to rural development as cash income [3]. Bees provide for a plethora of products (honey, wax, pollen, royal jelly, propolis, venom, etc.) and are well known in many local markets. This provides a portfolio of products 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, for example wax can be processed into candles, and honey can be made into mead (honey bees) [2]. Honey bees are affected by a number of pests and diseases including mites, various viruses, bacterial infections and fungal diseases. Despite the diversity of infectious diseases and their agents that can cause bee mortality, surveillance has been fragmented and thus it has been difficult to gain a clear historical view of bee health [4]. The spread of viruses is influenced by the Varroa mite [5]. There is an increasing understanding emerging of interaction between the diseases, the vectors of the disease and bee immunity and their role in colony loss. The developing association between the mite, *V. destructor* and a range of honey bee viruses is considered to be a major factor in the global collapse of honey bee colonies [6]. There are many factors that effecting honey bee productivity

rate in Nangarhar province. According to my experience we have the below problems which are involving on the reducing of honey bee production in Nangarhar province

- Honey bee diseases specially insects and tick disease which have direct negative impact on honey bee production rate.
- There is bad seasonal management for honey bees which have lack the honey bee production rate.
- Using of agro-chemicals (Herbicides and pesticides) for cereal crops production as well as the use of deadly chemicals for malaria eradication program have substantially reduced honey production.
- We have seen there in Nangarhar province poor marketing facility, low and discouraging price of honey and beeswax in local markets, lower quality of products, lack of market information, absence of organized market channel, transportation problem, lack of appropriate technologies for collecting, processing, packing and storage of honey to keep its natural quality, lack of government support in promoting market development, and low involvement of private sector.

Low productivity and poor quality of bee products are the major economic impediments for rural beekeepers [7]. Also, limited availability of bee forage (due to deforestation), shortage of honeybee colonies, backward technology, poor pre and post-harvest management has been reported affecting the supply of honeybee's products [2]. Furthermore, inadequate government support and poor extension services, lack of improved technologies, shortage of trained human power, and lack of access to credit services and weak road and market infrastructures in production areas. The present increasing use of pesticides and herbicides is severely threatening bee colonies implying conflicts of crop and

honey production [2].

**2. Aims of the Study**

Therefore, Aims of this research work is to avail valuable information on beekeeping practices, production and quality aspects of honeybee products mainly honey and beeswax that improve the understanding of users both for more competitive local and international markets with the following specific objectives:

- To asses factors affecting honeybee production and productivity,
- To determine quality parameters of honey and beeswax, according to the users acceptability
- To identify market constraints and flow of honey and beeswax.

**3. Materials and Methods**

Nangarhar is very glorious which has unique and diverse fauna and floras in which dominant flowering plants exist. The most known and common flowering trees found in the area are: farmisi, farmidwo, shaga, spinghar..... The study method has two parts; one is survey on which we will collect the exact information from 180 active bee keepers to know the factors which affect honey bee production in Nangarhar. The second part is performing the experiments in which we will have 24 honey bee full boxes. These 24 boxes will be divided into four groups. The first group will have 50000 to 60000 honey bees; the second group will be having 35000 to 45000 honey bees, the third group will be weak boxes on which will be having 20000 to 30000 honey bees and the last group is control group boxes which will be

have minimum 40000 to 50000 honey bees. In spring, summer and half of autumn season we have to feed experimental honey bees by natural flowers but in half autumn and winter season we have to feed experimental honey bees by sugar syrup 2:1. The remaining control group we have to plane feed by natural flowerers and honey. After the ending and at the duration of every season we will examine honey bee boxes and environment for diseases, flowers, insects, which are affect honey bee production in Nangarhar province. Also we have to be estimate honey be production (honey, broods, queens,) rate in the end of every season separately for every group.

The tools for data analysis were descriptive statistics such as percentages, frequencies, mean and standard deviations; t-test employed by SPSS statistical software which significantly identifies the influences of determinants of modern bee hive adoption. However, as of Aldrich and Nelson, (1984).

**Place of work:** The study districts are Behsood, kozkunar and surkhrod Nangarhar Afghanistan.

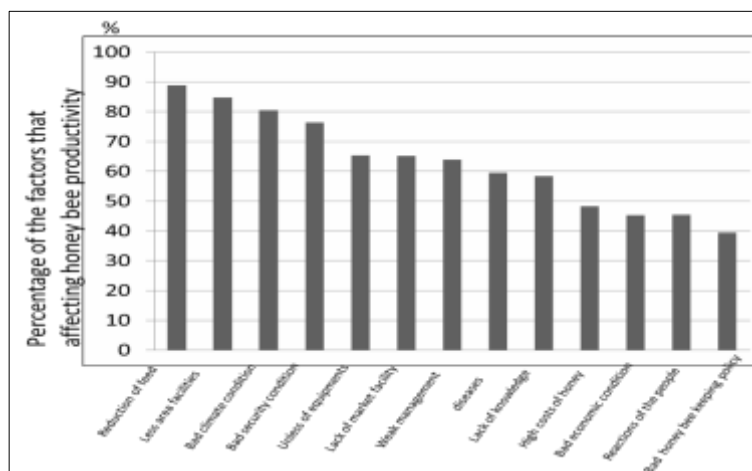
**4. Result of the research**

We had collected and filled the forums from listed beekeepers of Behsood, kozkunar and surkhrod Districts of Nangarhar. According to our researching we discussed the negative impacts on honey bee productivity with beekeepers and they share us their own experiences.

The complete result of our studied are showed in below table.

**Table 1**

No	Factors that Affect honey bee productivity	Percentage%
1	Reduction of feed	88,80%
2	Less area facilities	84,72%
3	Bad climate condition	80,55%
4	Bad security condition	76,38%
5	Unless of equipments	65,27%
6	Lack of market facility	65,17%
7	Weak management	63,88%
8	diseases	59,44%
9	Lack of technical knowledge	58,33%
10	High costs of honey	48,33%
11	Bad economic condition of the country	45,27%
12	Reactions of the people against bee farms	45,50%
13	Bad honey bee keeping policy of the country	39,44%



**Fig 1**

## 5. Discussion and Summary

Limited availability of bee forage (due to deforestation), shortage of honeybee colonies, backward technology, poor pre and post-harvest management has been reported affecting the supply of honeybee's products [7]. Furthermore, inadequate government support and poor extension services, lack of improved technologies, shortage of trained human power, and lack of access to credit services and weak road and market infrastructures in production areas. The present increasing use of pesticides and herbicides is severely threatening bee colonies implying conflicts of crop and honey production [2]. Bee products have been put to a wide variety of uses from time immemorial but today, with rising costs and perhaps some disillusionment with pharmaceutical and synthetic products, there is resurgence (reappearance) in interest into what the hive can offer [6]. While honey and bees wax are the best known primary products from beekeeping pollen, propolis, royal jelly and bee venom are also marketable primary products. Some of these products can be consumed directly or in the case which they were produced by bees, other can only be consumed as ingredients of secondary products. Due to favorable characteristics and quality of bee products they enhance value of these secondary products when added to them. Therefore, these secondary products, which can be made up of primary products are referred to value added products from beekeeping [8]. Apiculture is practiced on a near global scale, in both developed and developing countries. In most countries, honey and beeswax are the most well-known apicultural products, but bee pollen, royal jelly, and propolis are also marketable primary products. Some regions may have markets for bee venom, queens, the bees and their larva [9]. While most hive products can be used or consumed in their original state, each has additional uses and economic potential as ingredients of another product. The profitability of most primary beekeeping products increases significantly as value-added products [9].

According to our study there were many factors that involved to affecting honey bee productivity in Nangarhar province. These factors are reducing of feed (reduction of flowers), less area facilities, bad climate and security situations, unless of equipments and utensils, weak management, various disease and insects, lack of technical knowledge in beekeeping, high costs of honey, low economic condition of the country, reactions of the people against bee farms and bad policy of the country.

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