

AVERAGE COST OF PRODUCTION OF FISH, FLOWERS AND HONEY BEE

2073/74 (2016/17)



Government of Nepal
Ministry of Agriculture Development
Department of Agriculture

Agribusiness Promotion and Market Development Directorate

Market Research and Statistics Management Program

Hariharbhawan, Lalitpur
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FOREWORD



Market Research and Statistics Management Program (MRSMP) has been publishing annually **“Average Cost of Production of Fish, Flowers and Honey Bee”**. This is an integral part of a regular activity of MRSMP. The objective of this program is to generate reliable data and their dissemination as far as possible. This is comprehensive and valuable information which is presented by encompassing updated data and information relating to Nepalese Fish, Flowers and Honey Bee. The information on cost of production of these crops is crucial for program planning, monitoring and policy making as well as related aspects of agriculture of the country. Analysis of these data are imperative for commercially driven agriculture enterprises.

Information is a power and valid information is a foundation for sustainable development of agriculture enterprises as well as making these operations competitive in the global market, and will be key for economic development of the country.

My deep gratitude goes to Mr. Dinesh Bhattarai, Senior Statistical Officer, for his technical contribution to prepare this publication in this useful format. I express my gratefulness to Mr. Narendra Kumar Mahaseth, Senior Extension Officer, Mr. Gokarna Sharma Acharya, Agriculture Economist and other staff under this organization for their direct and indirect involvement to accomplish this report in anticipated time.

My words of thank goes to all Senior Agriculture Development Officers and other staffs of related districts and farmers. Lastly, my special thank is to the Technical Committee and the Department of Agriculture for valuable directions and guidance to accomplish this report in this comprehensive shape.

I welcome advice and comment from the users for further improvement of this publication.

A handwritten signature in dark ink, appearing to read 'Januka Pandit'.

Januka Pandit
Chief

Market Research and Statistics Management Program

Ashad, 2074



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1. INTRODUCTION

1.1 Aquaculture in Nepal

In fiscal year 2011/12, Fishery Development Centers scattered across the country have distributed 122,515 hatchlings, 15,150 fries, 6,868 thousand fingerlings and 27,000 fingerlings of aesthetic fishes to farmers engaged in Pisciculture in their coverage districts. Likewise, a total of 25.7 MT of fish for consumption has been produced and sold. A total of 55,500 MT consumable fish was estimated to have produced in FY 2016/17 by harvesting them in water mass including 9,934 Ha of ponds, 100 Ha paddy fields, 100 Ha enclosures, 3300 Ha marshland, 70,000 cubic meter cages, with trout harvesting in raceway ponds of 0.9 hectares. Likewise, a total of 55,500 MT of fish is estimated to have produced and harvested at the national level including 21,500 MT through management and development of Pisciculture in natural water mass like rivers, lakes, reservoirs, marshland, irrigated rice fields. Per capita fish available for consumption with this production is estimated at 2 kg (Economic Survey 2016/17).

Aquaculture diversification and commercialization have drawn attention of the planners and policy makers in terms of generating more income, employment opportunities and biodiversity conservation. The farming on high-value low-volume fishes and optimum utilization of the available resources for production, processing, and marketing operations has been conceived for the sustainable development of nation.

As per the current statistics of (MoAD, 2016/17) there are currently 39308 number of fish ponds with the production of 55500 MT of fish with the national average yield of 4887 Kg/Ha. The fish production from agriculture practices accounts 48543 MT that has been contributed through pond culture, fishery in swampy areas, paddy cum fish culture, cage fish culture, enclosure fish culture, trout fish culture in raceways etc. Similarly, fish production from capture fisheries contributes 21500 MT from rivers, lakes, reservoirs, marginal swamps and irrigated paddy fish with total production of 5600 MT.

As per the fish production and distribution, mainly there are two sectors involved i.e. Public and Private Sectors with the total production of 11,37,39,000 in numbers with 56,000 Mt. The public sector contributes more than 90 percent and only 10 percent is contributed from the private sector (MoAD, 2012).

The productivity of fish in Nepal is very low as compared to neighboring countries. Unavailability of quality breeds in time, weak technical knowhow, lack of care and management practices to incidence diseases and pest, low and declining nutrients and feed, poor adoption of improved management practices, higher cost of fry, fingerling are main causes of low productivity of fish (Fish Directorate, 2016). As the scope of expanding land area for cultivation is limited, increase in the production can only be achieved by increasing productivity per unit area, which can be obtained by the use of improved technology with improved management practices, by intensifying the farming system and by reducing the cost of production through appropriate technology and knowledge. The actual present scenario of the fish in the country is presented which depicts the area, production and yields are ever increasing that can be inferred from the table 1 below.

Table 1. Area, Production and Yield of Fish

Fiscal Year	Water Surface Area (Ha)	Production (MT)	Yield (Kg/Ha)
2010/11	7277	26941	3702
2011/12	7939	29999	3779
2016/17	9934	55500	4887

Source: Statistical Information on Nepalese Agriculture, MoAD, 20016/17

1.2 Floriculture in Nepal

World Scenario

Floriculture is the discipline of horticulture, which refers to the cultivation of ornamental plants, flowering plants, foliage plants, cut flowers, bulbs, seeds and seedlings. Floriculture is fast emerging as a booming industry in the global context but it is relatively in a premature phase in Nepal. Cut flowers are parts of plants, characteristically including the blooms or inflorescences and some attached plant

materials, but not including roots and soil. Fresh cut flowers are used for decorative purposes such as vase arrangements and bouquets at formal events; designs for weddings and funerals; gifts on occasions such as Mother's Day, Valentine's Day and in times of illness.

The annual consumption of cut flowers in the world is worth US\$ 13,000 million. The main importers of cut flowers are the USA, Germany, France, UK, Switzerland, Sweden, Norway, the Netherlands, Denmark, Belgium, Italy, Australia, and Japan. Germany is the largest importer now, followed by the US, France and Britain. Among the exporters of cut flowers, the Netherlands dominates the world trade (65%), followed by Columbia (12%) and Israel (6%). Thailand is world's sixth largest exporter of cut flowers (Prasad and Kumar, 2005). At present western Europe alone consumes half of the flowers produced in the world and a large expansion in flower consumption is taking place in Eastern Europe, Japan, China, South Korea, Thailand and Indonesia.

Nepal is rich in biodiversity having 6500 species of flowers, bushes and trees blooming in the uphill of the Himalayas to Tarai. Due to the favorable climate, cheap labor, and suitable soil floriculture can be one of the prominent enterprises especially in hills and inner plains. For the promising development of floriculture the cut flower has played significant role in Nepal. Cut flower is an emerging business having a short history in Nepal. It started from Kathmandu and expanded to cities like Biratnagar, Dharan, Chitwan and Pokhara. For the upliftment of the cut flower and for the promotion of its business the FAN (Floriculture Association of Nepal) was established in collaboration with AEC (Agro-enterprises Centre) in 15th November 1992 with 10 founder members from nurserymen and people interested in floriculture at the C.D.O. office of Lalitpur district. FAN now having 208 members from all over Nepal. The floriculture wholesale market was established in August 31, 1998 by FAN.

The volume of floriculture business in Nepal is growing at the rate of 10-15 percent a year. Today, the sector employs more than 2500 people with more than 60 percent women employees. This sector has already fetched investment over NRs. 375 million in infrastructure and planting materials. Although Nepal started exporting floral products just a few years back, its reach has gone up from India,

USA, Japan, the Netherlands, Norway, Australia, Taiwan, Italy, Germany and some of the Gulf countries (Shrestha, 1999). Carnation, Gerbera, Gladiolus and Rose are the flowers which are produced and have enormous demand throughout the year. In Nepal, the major cut flowers that are produced to fulfill the market demand are categorized as following:

- ◆ Throughout year production: (production is all the time); Gerbera, Rose, Carnation, and Gladiolus.
- ◆ Seasonal production: (production is more than three months in a year); Chrysanthemum, Tuberoses and Birds of paradise.
- ◆ Yearly production: (production is only once in a year in a defined time); Amarilies, Antirrhinum, Asrtromeria, Calla, Celocia, Chinchinchee and Daffodils.

National Scenario Cut flower business has been centralized in the Kathmandu valley. This localization is mainly due to access to consumer-orientation and favorable natural conditions. The establishment of such industries takes place wherever consumers with sufficient purchasing powers are living. The existence of most of the hotels, big business houses and international houses helps to encourage the establishment of these industries in Kathmandu rather than in other places. Similarly, the topological and climatic conditions prevalent within the valley support the establishment of floricultural enterprises (Chhetri, 1999). Cut flower business has shown steady and continuous development in Nepal. Due to urbanization and modernization, the demand of the cut flower has increased tremendously. In view of unmet demand for cut flowers, there is ample scope for promotion of this business within Kathmandu valley. Promotion of domestic production is expected to substitute cut flowers imported by hotels and other consumers, from India.

Production of cut flower has been categorized into two seasons i.e., summer season and winter season. In summer season, the demand of flower has been fulfilled by the Nepalese grower whereas in winter, wholesalers/retailers import flowers from India, as demand is not achieved by the Nepalese production. During the summer, the demand of the cut flower is accomplished by the production within Kathmandu, Bhaktapur, Lalitpur. Although during winter season the maximum demand is fulfilled from production of Terai (Table: 2). According to the quantity of

production, the districts of Nepal could be divided into four categories: Group A, B, C and D (Table: 2).

Table 2: Cut flower production at district level

Group	District
A	Kathmandu, Bhaktapur, Lalitpur, Dhading, Chitwan, Makwanpur
B	Jhapa, Morang, Sunsari, Dhanusha, Siraha, Kaski
C	Dolakha, Banke, Kailali, Kanchanpur, Doti, Dadeldhura
D	Ilam, Dhankuta, Saptari, Gorkha, Sindhupalchowk, Udayapur, Bara, Parsa, Kapilbastu, Bardia, Nuwakot, Sarlahi, Rupandehi, Mahottari, Tanahu, Palpa

Source: FAN

AGRO ECONOMIC ASPECTS

Carnation

Carnation (*Dianthus* spp) belongs to the family Caryophyllaceae. Carnations are flowers which are widely recognized by most people. It means “flower of love” or “flower of the gods”. There are approximately 300 species in the genus. They are native to the Eastern Hemisphere and are found naturally in the Mediterranean region, although modern varieties are grown both in greenhouses and in fields around the world. With such widespread commercial production available, there is no limited season of availability. Because of their long lasting qualities and fragrance, carnations are often featured in arrangements at holidays celebrated with flowers, at special occasions such as weddings and parties, and in sympathy arrangements.

There are several types of Carnations such as chabaud/marguerite, border and picotee, malmsison and perpetual flowering. But in Nepali market two types of carnation are popular, those are standard and spray. The demand of the carnation flower is 1,000-1,500 sticks per day. It can be cultivated around 8,000-9,000 plants in a ropani. It is estimated that there is production of 6.5 lakhs stick per annum (Table: 3). Kumari Fresh flower and Flora Nepal Pvt. Ltd. are the renowned producers of carnation (FAN, 2007).

Gladiolus

Gladiolus (*Gladiolus* spp) belongs to family Iridaceae. This large group consists of about 250 to 300 species of gorgeous, tender perennial corms, which are mainly natives of South Africa, although some are found wild in west and central Europe, the Mediterranean to southwest and central Asia, and northwest and east Africa. The name Gladiolus is Latin for small sword and refers to the shape of the leaves, thus these plants have been commonly called Sword Lilies and Corn Lilies. There are different types of Gladiolus available in the Nepali market such as American Beauty, Berlew, Bush balland, Camalton etc. In market two types of Gladiolus i.e. single and double are widely available. The demand of the Gladiolus is 3,500-4,500 sticks per day. It can be cultivated around 10,000-120,000 plants in a ropani. Around 800,000 sticks per annum are produced. It is estimated that 340 ropani is being used for cultivation. It is the largest grown cut flower in Nepal which occupies the top position with 70% of all sales (Devtech, 1995).

Gerbera

Gerbera (*Gerbera* spp) belongs to the family Asteraceae. These herbaceous plants are found in South Africa. The fuzzy leaves grow in a rosette close to the soil and are lanceshaped, deeply lobed and about 12 inches long. During the summer, these plants bear many orange-scarlet flowers that resemble daisies atop a long stalk. Generally two types of gerbera i.e., single and double are found in Nepali market. Its demand is around 1,500- 2,500 sticks per day. Around 3,000 plants can be grown per ropani. It is estimated that 630,000 per sticks per annum is supplied by domestic producers. Bagmati Flora, Kumari Flora and Garden Service are the major producers.

Rose

Rose (*Rosa indica*) belongs to the family Rosaceae. It is the most popular garden plant in the world, as well as the most important cut flower. There are between 150 and 200 species of wild roses in the Northern Hemisphere, selection and hybridization has given rise to over 20,000 cultivars. It is highly valued for its form, fragrance and endless variety of color. The demand of Rose is 2,500-4,000 sticks per

day. It is estimated that 500,000 rose sticks per annum are produced and around 3,000 plants can be cultivated in a ropani. Everest nursery is the largest producer of Rose and only one to export to Japan.

Producer

There are altogether 650 nurseries in Nepal, out of which around 100 are involved in cut flower production. There are no authentic data that exhibit the exact number of farmers involved in cultivation of flowers (FAN, 2008). There are the four major producers who are involved in production of cut flowers and who provide continuous supply of products to fulfill market demands.

- a. Flora United: It is established in 2008. It possesses highest number of producers (around 30-45). It also covers highest percentage (35- 45) of supply in total market.
- b. Flora Incorporation: It was established in 2003, and has the second highest number of producers, (25-30). It covers 32-40 percentage of total market.
- c. Flora Nepal Pvt. Ltd.: It covers 10-15 percentages. It produces only Carnation and Rose.
- d. Standard nursery: Established in 1973, it cultivates Carnation, Gerbera and Gladiolus. It is producer as well as retailer.

Retailer

Retailers are the people who sell goods or commodities in small quantities directly to consumers. The products are bought from wholesalers generally but they also get from nurseries/growers or they import through personal contacts at the time of low production in winter season. Women in Floriculture, Chameli and Bodhi Brikhya were the first few retailers of the cut flower in Nepal. They were established in early 1990's. There were four retailers during the start of the cut flower business but, today the number has reached to 58. Daffodil, Florist, Women in Floriculture, Design and Bagmati flora are some of the major retailers. Generally gift-shops and departmental stores function as retailers to sell cut flowers. These retailers are confined to commercial areas of Kathmandu valley such as Tripureshwor, Chabahil,

Pulchowk, Kamalpokhari, Maharajgunj, Kupandole and Paknajol (Anonymous, 2002).

Consumer: The increase in demand from the past decade indicates the increase in number of consumers. Due to the modernization, the use of cut-flower has increased. Today flowers are being used widely in every traditional, religious-rituals, celebrations and ceremonies. The institutional buyers such as hotels and banks dominate the demand but their demand has remained constant from year to year. It is the local people that have created increase in demand.

Import: Nepal imports floricultural products and its related goods from UK, France, the Netherlands, Japan, Thailand, Italy and India. The products include live trees and other plants; hybrid seeds, bulbs, roots, ornamental foliage and cut flowers. Cut flower is imported from Thailand, Italy and India. Most of the cut flower comes from India during winter season. The need of import has risen due to the lack of use of modern technology. But from past decade, due to the systematic production of cut flower, import has reduced to some extent.

Export: Nepal has capacity to export cut flowers. But, still there are a few floriculture organizations which export to other countries. Among them, Everest Floriculture exports Roses to Japan. There are some of them which export cut flowers to India occasionally, but in negligible amount. As compared to imports, the export in terms of value has significantly increasing each year.

According to the Commercial Floriculture Survey 2014-15, unveiled by Central Bureau of Statistics (CBS) today, only 561 farmers are engaged in floriculture in a commercial scale. The survey has defined commercial floriculture as farming of flowers being done on at least eight aanas of land in mountain/hill regions and 10 dhur of land in Tarai regions. (CBS, 2014/15). Majority of the farms (381) are located in province no 3, then 68 in province no 1, 54 in province no 2, 22 in province no 4, 10 in province no 7 and the least 2 farms in province no 6. The survey report shows that commercial floriculture is done in 36 districts over 147.4 hectares of land. While Kathmandu is at the top in terms of producing flowers commercially, Lalitpur, Morang, Bhaktapur and Kaski are the other top four districts

where floriculture is done commercially. Of the total farmers doing commercial farming of flower, 283 are based in Kathmandu. forty seven farmers are involved in cut flower production business, 220 are engaged in loose flower production and 14 in garden dubo. Major changes in floriculture was found during 2060-70 BS (299 farms added).

The Commercial Floriculture Survey 2014-15, which according to stakeholders is the first authentic database of domestic floriculture industry, shows that Tamang tribe is mostly engaged in commercial farming of flowers in the country. According to the survey, 27.9 per cent of owners of total commercial floriculture farms of the country are Tamangs, followed by those from Chhetri and Newar tribes at 18.1 percent and 15.3 percent, respectively. Similarly, the survey also shows that 29 percent of owners of such flower farms are women. The CBS report also shows that domestic floriculture industry is contributing Rs 450 million annually on an average to the country's GDP.

Table 3 : Estimated Flower Production, Demand, Yearly Export & Import Transaction Scenario in Nepal (1992/93-2013/13

Description/ Years	92/93	95/96	98/99	00/01	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/013
Number of nurseries	80	120	200	250	450	550	550	550	560	600	600	625	635	636*	650
Total Land Use in hector								82	87		105	110	120	120	137
Number of Districts	2	11	15	16	34	34	34	34	35	35	35	35	35	36	38
Gladiolus demand in KTM (sticks/day)	100-150	2500-3000	3000-4500	4500	4000-4500	4500-6000	3000-4500	3500-4500	3500-4500	3500-4000	4000-5000	4000-5000	4000-6000	6000-8000	6000-8000
Gladiolus production (in Ropanies)	10-15	50-70	120	145	312	350	341	340	342	345	350	365	365	287	287
Rose Demand (sticks/day)	100-150	1000	2000	3000	3000-4000	3000-4000	3000-4000	2500-4000	2500-4000	2500-4000	4000-6000	4000-6000	4000-6000	7000-9000	7000-9000
Rose production (in Ropanies)	5	40	50	60	135	135	55	55	255	255	275	282	282	172	172
Tuberose demand (sticks/day)	50-100	1000-1500	2000	3000	2500-3000	3000-4500	1500-2000	1500-2000	1500-2000	1500-2500	1500-2500	2000-3500	2000-3500	4000-6000	4000-6000
Tuberose production (in Ropanies)		5	30	40	50	50	20	20	10	10	10	12	45	45	50
Camation demand (sticks/day)	50-100	50-100	200-50	250-300	300-400	300-500	1000-1500	1000-1500	1500-2500	2000-3000	3000-4000	3000-4000	3000-5000	5500-7500	5500-7500
Camation production (in Ropani)									25	30	40	40	83	99	107
Gerabera production (in Ropanies)								15	15	20	30	35	41	45	87

Demand of cut flowers													
Import Cut flowers (%)	95	60	50	20	18	18	20	20	20	25	25	25	25
Number of flower Show Room in Nepal	0	14	22	33	50	56	56	58	57	54	60	86*	86
Plants/seasonal flowers and cut flower													
(yearly sales in '000 Rs.)	10000	30000	40000	70200	170000	206200	216200	230000	250000	260000	560000	664000	1053200
Yearly export (in Rs.)			730560	4007569	18259383	11204703	16228315	32,634,275	20,844,930	24216171	29205311	20874000	29,573,193
Yearly Import (in Rs)				1,882,973	393,377	1,338,282	239,707	1,598,385	531,817	55,491,463	6,255,843	9230000	33,166,355
													11182468
													95,198,468

1.3 Beekeeping (Apiculture) in Nepal

Beekeeping with a native hive bee *Apis cerana* is an old tradition handed down from generations and it is still in a preliminary stage. *Apis cerana* colonies are generally kept in log and wall hives without any management except honey harvesting once or twice a year. *Apis cerana* beekeeping is a sideline activity for many farmers, who grow variety of crops, rear livestock and perform number of other activities to manage their livelihood. However, in some parts of the country, particularly in chiuri threshold areas, beekeepers earn substantial income from sale of honey and beeswax. The Government of Nepal, together with vnational, bilateral agencies, has made various efforts to increase productivity of *Apis cerana* through the provision of supply inputs and embedded technical assistance and training. The Government took first initiative in 1968 to provide training on beekeeping through its Department of Cottage Industry and Remote Area Development Committee. In 1975, Vocational Entomology Section was established to look after beekeeping and sericulture and in 1980 a separate unit; Beekeeping Development Section (BDS) was created to provide training and extension support services in beekeeping.

Beekeeping has been practiced in Nepal since immemorial times. Commercial beekeeping is practiced mainly for the production of honey and pollinating crops. Honey is one of the oldest sweets known to man, Nepali beekeepers keep wild honey from hives on rock wall traditionally. There are lots of health benefits of raw honey and tastier than pasteurized honey. Honey has antibacterial properties, due to its hygroscopic nature, honey can dehydrate the burning skin and kill wound bacteria. Beekeeping in Nepal is recognized as a potential sector to increase the income and solve unemployment problem in Nepalese communities. Honey can be used as medical applications such as acupuncture, alternative medicine and homeopathy. Beeswax can be used for making cosmetics, candles and even furniture polish in this way it becomes a popular and profitable activity. Our honey bee farm is established to produce raw and pure organic honey with natural beekeeping at bee farm Nepal. Organic honey used at home as a healthy supplement, important ingredient in medicines and sold in market. Apiculture is non land based farming system and provides nutritional food and ecological balances. Beekeepers need to

take certain safety measures because bees can be dangerous should be properly dressed before working with the bees.

Nepal produces a wide variety of specialized honey and other bee products noted for their purity and high medicinal value. The majority of the honey found in Nepal is of multi-floral origin. However, there are some unifloral honeys including chiuri (Indian butter tree), mustard, buckwheat, rudilo (*Pogostomone* spp), sunflower and litchi honey. Honeydew honey collected from pine and spruce trees (Salle Maha) and oak trees (Dalle Maha) is also produced in the mountain areas of Nepal. Most honey in Nepal is extracted by squeezing the combs with hands. Squeezed honey is very common in the mountain areas of Nepal where *Apis cerana* beekeeping is practised in fixed comb log and wall hives. Some honey is also extracted by centrifugal extraction, mainly honey produced by *Apis mellifera* beekeepers who keep bees in moveable frame hives. Liquid honey is preferred by Nepali consumers who consider coarsely granulated honey as inferior in quality due to adulteration with table sugar. Contrary to this, the finely granulated chiuri and litchi honeys and cold pressed multifloral honeys are regarded as the best honeys. In Nepal, honey is also classified according to bee species, harvesting season and geographical location.

Nepal's diverse climatic conditions and abundance of flora make it host to five species of honeybee. At present, marketing of honey seems to be a big problem since per capita consumption of honey in Nepal is very low. High cost of transportation and weaker institutional mechanism to assure quality also pose difficulty in exporting Nepali honey. Commercial Beekeeping kept in hives and managed for honey production and pollination. The other three species-the Himalayan cliff bee (*Apis laboriosa*), the giant honeybee (*Apis dorsata*) and the dwarf honeybee (*Apis florea*)-are wild. Specialized people and communities called 'honey hunters' collect honey and beeswax from the nests of these wild bees. Although there are no validated figures, it is estimated that, at present, there are about 90,000 *Apis cerana* hives and 20,000 *Apis mellifera* hives in Nepal. The average honey yield is 20 kilogram per annum and total honey production from *Apis mellifera* colonies is estimated to be 500-750 MT.

Honey is used as nourishing health food in varied forms and said to facilitate better physical performance. It provides energy as much as 3.5 kilo cal/kg and requires no digestion, but only a slight digestive action. Honey can be consumed directly or used in cakes, pastries, candies, chewing gum, toffees, etc. It also has laxative properties; it increases appetite and helps to control gastritis. Honey can give relief to allergies, sinus, arthritis and asthma, and is one of the most effective agents in treating burns and cuts. It is therefore considered as one of the most effective and inexpensive home remedies. In many areas of Nepal where sugar is not easily available honey is used as a substitute of sugar. It is also used as an energy food in preparing special dishes such as pancake, laddu and selroti. These dishes are prepared for special ceremonies for example wedding and rice feeding ceremony. These items are also prepared for consumption by household members and farm laborers who take part in labor sharing activities during peak farming season.

The price of honey varies greatly. On average, the farm gate price of honey is NPR 300-450/kg, the collector/middleman gets NPR 350-500/kg and the retail price is NPR 500-600/kg. The price offered in Nepal is reasonably good but relatively high when compared to the bulk import price of Chinese honey. In recent years, the consumption of honey in Nepal has increased, particularly in the Kathmandu Valley and other urban areas. Many consumers, mostly high-middle class families and expatriates, prefer imported honey because of their established brand names, eye catching labels and professional packaging. However, for poor people in Nepal honey is still a luxury item and considered very expensive. Most people in Nepal use honey as a medicine or for religious ceremonies, rather than as a dietary supplement. The per capita consumption of honey in Nepal is about 36g per year, which is 50 times lower than in Germany, which consumes 1.8 kg/year.

The beekeepers harvested honey 2-7 (mean 3.2) times from *Apis cerana* in autumn and spring in the hills and 3-7 times (mean 4.8) from *Apis mellifera* in the Terai in winter and spring. Bee Keeping Section (2004) reported 1, 27,501 honeybee colonies including 1, 01,684 traditional (log and wall hives) and 25,200 improved (*A. cerana* 17,744 and *A. mellifera* 7,456) hives kept in Nepal. The annual honey production is estimated 529.3 mt and it is one of the exporting, high value cash earning commodities in Nepal. (Bee Keeping Section, 2003). However, the role of

bees as crop pollinators has been largely ignored and a vast potential, in using bees to augment national income through increased crop production has been forgotten. Honey production and crop pollination have to be exploited for the agriculture development and poverty reduction in Nepal. The Asiatic honeybee, *A. cerana* is adopting by the hill caste community and *A. mellifera* in Terai of Chitwan (DADO, 2004; DADO, 2005).

2. RATIONALE:

The present study represents the crop production level and input use in the selected production areas of some important districts. The yield and input use level, here noted, may appear to be higher compared to the national average production. Nevertheless, it is hoped that it would be helpful to assess the status of various efficiency indicators and provide basis to judge appropriate resource allocations by farmers so that the effective costs can be reduced to some extent if possible. This report will also assist toward formulation of appropriate price policy. But the generalization of the report is specific to the district condition along with the varietal cultivars in response.

3. OBJECTIVES

The general objective of the study is to analyze the production and marketing margin of fish, flowers and honey in selected districts. The specific objectives are:

To compare cost and benefit of the selected commodities.

To study marketing margin of selected commodities.

To identify bottleneck areas in production and marketing and recommend strategic planning for future action.

To ascertain the problems and remedial measures of these crops.

4. SCOPE AND LIMITATIONS OF THE STUDY

The present study would impart some lights to analyze different aspects of production and marketing of fish, flowers and honey bee in districts. Therefore, the findings of this study may be helpful to policy makers, researchers, and farmers to make these businesses more prosperous and profitable.

Due to limited human resource, the study couldn't be conducted as a national study however; limited in few districts due to time and budget constraints. This study was based on purposive sampling of commercial fishery, flower grower and bee keeping farmers; and the data was acquired through the structured questionnaire based on the Manual Survey of the Market Research and Statistics Management Program and the respondents reported mainly on recall basis, so there may be some response errors. This study couldn't cover up the size and quality despite focuses on the quantity of fish, flower and honey.

5. METHODOLOGY

The methodology consists of conceptual framework, selection of the study area sample size, sampling procedure, source of information and data collection techniques, survey design, data collection procedure and methods and techniques of data analysis. Description of each of these sections is as follows.

5.1 Conceptual Framework for Methodology

The conceptual framework outlines briefly about the theoretical background for the analysis of production system, gross margin, marketing systems and marketing margin.

5.1.1 Gross Margin

The per-unit cost of production and profitability is important in most of the study. In this regarded the main issue may be that whether the current price of concerned enterprise is sufficient to give the farmers income or not.

The gross margin of any enterprise is defined as the difference between enterprise gross income and the variable expenses attributable to the enterprise (Dillon and Hardaker, 1993). The estimation of gross margin is essential to obtain optimum through maximizing the gross margin (Upton, 1996). The variable expenses used in the calculation of gross margin may be defined as expenses that vary more or less in direct proportion to the level of the enterprise. The gross margin is usually expressed on a per unit basis that is per unit area and/or per unit of production. Gross margin gives an idea about farm planning as it helps to decide, whether or not to continue existing farm practices or substitute by others.

Farm size or the scale of production is most important in studying the farm enterprises, because all the activities connected with farm depend on the size of the farm. Farm size is measured in terms of area coverage. But, it depends of situations such as; area of farm, nature of farming, location of the farm, capital employed and volume of output. As compared to small scale farming, large scale farming is expected to have certain advantages such as, efficiencies of division of labour, reduction in average overhead costs, economies in buying, economies in selling, economies in skill, better bargaining power and flexible profit making opportunities because of relative economies of scale of production (Lekhi and Sing, 1996). Thus larger farm enterprises/farmers take higher per unit gross margin than the smaller. This suggests importance to differences in the scale of production enterprises.

5.1.2 Marketing Systems and Marketing Margin

The marketing system involves wide range of activities, firms and mechanism of delivering goods one hand to other band, with a view for providing efficient services in the continuum of production-consumption chain. It is because; an efficient marketing system minimizes cost, and benefits all the section of the society (Acharya and Agarwal, 1999).

Marketing system creates time, space, and form utilities of the farm produce for the consumers. Marketing system operates to transport produce to where consumers wish to take delivery of it, at time they find more convenient and in the forms desirable. These functions add values of the farm produce for the consumers and reflected in marketing margin. If these marketing functions are performed in an efficient way, there are low marketing costs resulting into lower marketing margin and higher producers' share on consumers' rupee. Thus, the prices farmers receive and the quantities they can sell very much dependent upon the performance of functionaries in marketing chain.

As marketing margin provides an indication of the efficiency of existing marketing systems consideration of it in economic analysis of marketing systems of fish enterprises is sensible. The marketing margin also known as retail-farm-gate margin is the difference between the retail price of a product and the price received by farmers for its fishery product (Colman and Young, 1995).

5.1.3 Gross Margin Analysis

The gross margin provides simple and quick method of analyzing a farm business. For any enterprises gross margin is the difference between the gross return and the variables cost incurred. For the analysis of gross margin, only the variables costs were considered. The variable cost must be specific to single enterprise and vary approximately in proportion to the size of the enterprise (Sankhyan, 1983). The estimation of gross margin is essential to obtain economic optimization (Upton, 1996). The gross margin of the pond fish producers in this study was calculated as;

Gross margin = Gross return – Total variable cost.

Gross margin = Summation of gross return of fish and its integration.

Total variable cost = Summation of cost of all variable item.

5.1.4 The Net Profit Analysis

The net profit is the difference between total revenue and total cost incurred. Thus, the net profit for any farm business can be written as;

$TT = TR - TC$

$TT = TR - (TFC + TVC)$

$TT = \text{Summation } PY \times Y - \text{Summation } P \times I \times X - K$, K if fixed cost

Where,

TT = Net profit.

TC = Total cost.

TVC = Total variable cost.

Xi = Quantity of input.

Pxi = Price of it input.

TR = Total revenue.

TFC = Total fixed cost.

Y = Quantity of output.

Py = Price of output.

K = Fixed cost.

5.1.5 Benefit /Cost Analysis

Benefit cost (B/C) analysis was done after calculation of the total cost and Gross return from production. Cost of production was calculated by summing the variable as well as fixed cost items in the production process, while for calculation of gross return, income from fish and its integration. So using following formula was carried out benefit – cost analysis;

$$\text{B/C ratio} = \frac{\text{Gross return}}{\text{Total cost}}$$

5.1.6 Marketing Margin Analysis

Marketing margin is the difference between the retailer's price and the farm-gate price, which was calculated as follows:-

Marketing margin = Retailers price (Pr) - Farm gate price (Pf).

5.1.7 Selection of the Study Area

Eight districts were taken for the study of Honey bee. Similarly, for fish six districts from central and western terai of Nepal were taken for the study. This district shares the relatively higher percentage of area coverage and fish production in the country. There were plenty of important fisheries markets, among them the Janakpur-Pachthiya fishery market and Bhairahawa fish market were selected for the study of marketing system in the district. For rainbow trout three districts were taken for this study. Six types of flower were taken for the survey of flower.

5.1.8 Source of Information and Collection Techniques

Various sources and techniques were used for collection of the necessary information. In this study, both the primary and secondary data were collected and analyzed. Primary Information obtained through pre tested questionnaire, observation and group discussion, however the sources of secondary data were the DADOs of the related districts, departmental and ministerial publication for the study.

5.1.9 Techniques of Data Collection

Different techniques such as: Interview and observation were employed for the collection of necessary information.

6. FINDINGS OF STUDY

Table 4: Average cost of production and profit margin per year of Honey Bee (*Apis mellifera*)

Districts	Variable cost in Rs.		Fixed cost in Rs.		Total cost in Rs.		Cost per colony		B/C ratio	
	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year
Morang	140967	34717	109125	3125	250092	37842	10003.68	1513.68	0.74	4.87
Chitwan	134575.88	34575.88	113250	2500	247825.88	37075.88	9913.04	1483.04	0.77	5.16
Nawalparasi	124717.50	24717.50	113250	9500	237967.50	34217.50	9518.70	1368.70	0.96	6.71
Dang	143109.45	30609.45	105750	2750	248859.45	33359.45	9954.38	1334.38	0.89	6.66
Kailali	126161.33	31161.33	108125	2650	234286.33	33811.33	9371.45	1352.45	0.75	5.23

Table 5: Average cost of production and profit margin per year of Honey Bee (*Apis cerena*)

Districts	Variable cost in Rs.		Fixed cost in Rs.		Total cost in Rs.		Cost per colony		B/C ratio	
	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year
Kavre	154825.65	34825.65	115875.00	3050.00	270700.65	37875.65	10828.03	1515.03	0.58	4.17
Lamjung	139559.40	33309.40	95150.00	3050.00	234709.40	36359.40	9388.38	1454.38	0.64	4.16
Gulmi	137489.40	31239.40	99050	2625	236539.40	33864.40	9461.58	1354.58	0.67	4.70

Table 6: Average cost of production and profit margin per hectare of Fish (Chinese carp)

Districts	Variable cost in Rs.		Fixed cost in Rs.		Total cost in Rs.		Cost per Kg.		B/C ratio	
	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year
Bara	654844.50	654844.5	1205000	106500	1859844.5	761344.5	387.47	158.61	0.67	1.64
Kanchanpur	671404.50	671404.5	1185500	101500	1859904.5	772904.5	344.43	143.13	0.77	1.85
Rautahat	651015	651015	1185000	101500	1836015	752515	408	167	0.69	1.67
Kapilbastu	676683	676683	1185000	101500	1861683	778183	337.58	141.49	0.76	1.8
Banke	645322.5	645322.5	1190000	107000	1835322.5	752322.5	349.59	143.3	0.74	1.81
Rupandehi	689517	689517	1187000	101500	1876517	791017	360.87	152.12	0.71	1.68

Table 7: Average cost of production and profit margin per raceway (200m²) of Rainbow trout

Districts	Variable cost in Rs.		Fixed cost in Rs.		Total cost in Rs.		Cost per Kg.		B/C ratio	
	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year
Rasuwa	1184040	1184040	1112500	62500	2296540	1246540	805.8	437.38	0.87	1.6
Nuwakot	1194131.25	1194131.25	1112500	75000	2306631.25	1269131.25	809.34	445.31	0.80	1.46
Kaski	1142122.5	1142122.5	1162500	79000	2304622.5	1221122.50	808.64	428.46	0.87	1.63

Table 8: Average cost of production and profit margin per hectare of Marigold in Dhading

Districts	Variable cost	Fixed cost	Total cost	Production cost per Quintal
Dhading	145011.89	259	145270.89	6781.12

Table 9: Average cost of production and profit margin of flowers in different districts

Districts	Flowers	Variable cost in Rs.		Fixed cost in Rs.		Total cost in Rs.		B/C ratio	
		1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year	1 st year	2 nd year
Lalitpur	Red rose (2000m ²) Green house	3555000.0	2835000	4045500	0	7600500	2835000	0.63	1.69
Kathmandu	Gypsophila (1000m ²) Green house	2393000.0	1993000	2227000	0	4620000	1993000	0.83	1.93
Bhaktapur	Limonium (1000m ²) Green house	2881000.0	2306000	2464000	0	5345000	2306000	1.52	3.52
Kathmandu	Gerbera (1000m ²) Green house	2570000.0	2050000	2410000	0	4980000	2050000	0.65	1.59
Kathmandu	Carnation (1000m ²) Green house	2510000.0	2030000	2410000		4920000	2030000	0.65	1.97

7. RECOMMENDATIONS

The major findings of the study have initiated to forward some points as recommendation mainly with the view of profit maximization and lowering the cost of cultivation with sustainable agricultural sector through respective crop directorates and marketing directorates under the Department of Agriculture and other stakeholders of agriculture extension.

- Increase profit margins by reducing production costs.
- Decrease production costs by increasing appropriate farm mechanization activities.
- Enhance human labor capacity by trainings to improve working efficiency.
- Adopt better crop production planning.
- Judicial use of factors of production function.
- Use market price information so as to manage broader marketing opportunities.
- Increase in agriculture product quality and volume as per the market needs regularly.
- Determine the scale of production so as to increase the profit levels at nominal costs.

ANNEXES

Annex 5: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Morang

Crop: Apis mellifera

Year: 2016/2017

Species: Mellifera

Condition: Mid-Terai

No of Colony : 25

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			140967.00	34717.00
a. Human Labour	Day	4.00	1675.00	6700.00	6700.00
b. Bee colony	No	25.00	4250.00	106250.00	
c. Supplement feeding	Kg.	10.00	90.00	900.00	900.00
d. Honey comb foundation	Kg.	10.00	230.00	2300.00	2300.00
e. Pesticides/Insecticides	No	2.00	175.00	350.00	350.00
f. Sprayer Use	Hour	1.00	200.00	200.00	200.00
g. Transportation/migration charge	Rs.			16500.00	16500.00
h. Others	Rs.			3000.00	3000.00
i. Interest on Variable Cost	Rs.			4767.00	4767.00
2. Fixed Cost	Rs.			109125.00	3125.00
a. Bee hive	No	25.00	3750.00	93750.00	
b. Hive stand	No	25.00	400.00	10000.00	
c. Frame feeder	No	50.00	65.00	3250.00	
d. Bee cap	No	5.00	425.00	2125.00	
e. Hive tool	Rs.			1000.00	
f. Honey extractor	No	1.00	7800.00	7800.00	
g. Gloves	Pair	5.00	325.00	1625.00	1625.00
h. Others	Rs.			1500.00	1500.00
3. Total Cost	Rs.			250092.00	37842.00
4. Gross Income	Rs.			184200.00	184200.00
a. Main Product-Honey	K.G.	455.00	390.00	177450.00	177450.00
b. By-Product-Honey wax	K.G.	25.00	270.00	6750.00	6750.00
c. Bee colony w/o hive	No	8.00	4100.00	32800.00	32800.00
5. Gross Profit at Farm Gate	Rs.			-65892.00	146358.00
6. Cost Per colony	Rs.			10003.68	1513.68
7. B/C ratio				0.74	4.87

Annex 1: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Chitwan

Bee: Apis mellifera

Year: 2016/2017

Species: Mellifera

Condition: Terai

No of Colony : 25

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			134575.88	34575.88
a. Human Labour	Day	10.00	1500.00	15000.00	15000.00
b. Bee colony	No	25.00	4000.00	100000.00	
c. Supplement feeding	Kg.	10.00	100.00	1000.00	1000.00
d. Honey comb foundation	Kg.	5.00	225.00	1125.00	1125.00
e. Pesticides/Insecticides	No	2.00	150.00	300.00	300.00
f. Sprayer Use	Hour	1.00	100.00	100.00	100.00
g. Transportation/migration charge	Rs.			10000.00	10000.00
h. Others	Rs.			2500.00	2500.00
i. Interest on Variable Cost	Rs.			4550.88	4550.88
2. Fixed Cost	Rs.			113250.00	2500.00
a. Bee hive	No	25.00	3500.00	87500.00	
b. Hive stand	No	25.00	350.00	8750.00	
c. Frame feeder	No	50.00	75.00	3750.00	
d. Bee cap	No	5.00	450.00	2250.00	
e. Hive tool	Rs.			1000.00	
f. Honey extractor	No	1.00	7500.00	7500.00	
g. Gloves	Pair	5.00	300.00	1500.00	1500.00
h. Others	Rs.			1000.00	1000.00
3. Total Cost	Rs.			247825.88	37075.88
4. Gross Income	Rs.			191250.00	191250.00
a. Main Product-Honey	K.G.	450.00	400.00	180000.00	180000.00
b. By-Product-Honey wax	K.G.	45.00	250.00	11250.00	11250.00
c. Bee colony w/o hive	No	8.00	5000.00	40000.00	40000.00
5. Gross Profit at Farm Gate	Rs.			-56575.88	154174.13
6. Cost Per colony	Rs.			9913.04	1483.04
7. B/C ratio				0.77	5.16

Annex 2: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Nawalparasi

Bee: Apis mellifera
Species: Mellifera
No of Colony : 25

Year: 2016/2017
Condition: Terai

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			124717.50	24717.50
a. Human Labour	Day	3.00	1500.00	4500.00	4500.00
b. Bee colony	No	25.00	4000.00	100000.00	
c. Supplement feeding	Kg.	10.00	85.00	850.00	850.00
d. Honey comb foundation	Kg.	10.00	225.00	2250.00	2250.00
e. Pesticides/Insecticides	No	2.00	150.00	300.00	300.00
f. Sprayer Use	Hour	1.00	100.00	100.00	100.00
g. Transportation/migration charge	Rs.			10000.00	10000.00
h. Others	Rs.			2500.00	2500.00
i. Interest on Variable Cost	Rs.			4217.50	4217.50
2. Fixed Cost	Rs.			113250.00	9500.00
a. Bee hive	No	25.00	3500.00	87500.00	
b. Hive stand	No	25.00	350.00	8750.00	
c. Frame feeder	No	50.00	75.00	3750.00	3750.00
d. Bee cap	No	5.00	450.00	2250.00	2250.00
e. Hive tool	Rs.			1000.00	1000.00
f. Honey extractor	No	1.00	7500.00	7500.00	
g. Gloves	Pair	5.00	300.00	1500.00	1500.00
h. Others	Rs.			1000.00	1000.00
3. Total Cost	Rs.			237967.50	34217.50
4. Gross Income	Rs.			229625.00	229625.00
a. Main Product-Honey	K.G.	425.00	405.00	172125.00	172125.00
b. By-Product-Honey wax	K.G.	30.00	250.00	7500.00	7500.00
c. Bee colony w/o hive	No	10.00	5000.00	50000.00	50000.00
5. Gross Profit at Farm Gate	Rs.			-8342.50	195407.50
6. Cost Per colony	Rs.			9518.70	1368.70
7. B/C ratio				0.96	6.71

Annex 3: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Dang

Bee: Apis mellifera

Year: 2016/2017

Species: Mellifera

Condition: Mid Terai

No of Colony : 25

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			143109.45	30609.45
a. Human Labour	Day	4.00	1600.00	6400.00	6400.00
b. Bee colony	No	25.00	4500.00	112500.00	
c. Supplement feeding	Kg.	8.00	90.00	720.00	720.00
d. Honey comb foundation	Kg.	10.00	235.00	2350.00	2350.00
e. Pesticides/Insecticides	No	2.00	200.00	400.00	400.00
f. Sprayer Use	Hour	1.00	150.00	150.00	150.00
g. Transportation/migration charge	Rs.			12500.00	12500.00
h. Others	Rs.			3250.00	3250.00
i. Interest on Variable Cost	Rs.			4839.45	4839.45
2. Fixed Cost	Rs.			105750.00	2750.00
a. Bee hive	No	25.00	3600.00	90000.00	
b. Hive stand	No	25.00	375.00	9375.00	
c. Frame feeder	No	50.00	80.00	4000.00	
d. Bee cap	No	5.00	475.00	2375.00	
e. Hive tool	Rs.			1000.00	
f. Honey extractor	No	1.00	7500.00	7500.00	
g. Gloves	Pair	5.00	300.00	1500.00	1500.00
h. Others	Rs.			1250.00	1250.00
3. Total Cost	Rs.			248859.45	33359.45
4. Gross Income	Rs.			222250.00	222250.00
a. Main Product-Honey	K.G.	490.00	400.00	196000.00	196000.00
b. By-Product-Honey wax	K.G.	105.00	250.00	26250.00	26250.00
c. Bee colony w/o hive	No	10.00	5500.00	55000.00	55000.00
5. Gross Profit at Farm Gate	Rs.			-26609.45	188890.55
6. Cost Per colony	Rs.			9954.38	1334.38
7. B/C ratio				0.89	6.66

Annex 6: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Kailali

Crop: Apis mellifera

Year: 2016/2017

Species: Mellifera

Condition: Terai

No of Colony : 25

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			126161.33	31161.33
a. Human Labour	Day	4.00	1500.00	6000.00	6000.00
b. Bee colony	No	25.00	3800.00	95000.00	
c. Supplement feeding	Kg.	10.00	90.00	900.00	900.00
d. Honey comb foundation	Kg.	10.00	250.00	2500.00	2500.00
e. Pesticides/Insecticides	No	2.00	175.00	350.00	350.00
f. Sprayer Use	Hour	1.00	145.00	145.00	145.00
g. Transportation/migration charge	Rs.			14000.00	14000.00
h. Others	Rs.			3000.00	3000.00
i. Interest on Variable Cost	Rs.			4266.33	4266.33
2. Fixed Cost	Rs.			108125.00	2650.00
a. Bee hive	No	25.00	3700.00	92500.00	
b. Hive stand	No	25.00	360.00	9000.00	
c. Frame feeder	No	50.00	90.00	4500.00	
d. Bee cap	No	5.00	425.00	2125.00	
e. Hive tool	Rs.			1500.00	
f. Honey extractor	No	1.00	9000.00	9000.00	
g. Gloves	Pair	5.00	280.00	1400.00	1400.00
h. Others	Rs.			1250.00	1250.00
3. Total Cost	Rs.			234286.33	33811.33
4. Gross Income	Rs.			176825.00	176825.00
a. Main Product-Honey	K.G.	405.00	425.00	172125.00	172125.00
b. By-Product-Honey wax	K.G.	20.00	235.00	4700.00	4700.00
c. Bee colony w/o hive	No	10.00	4500.00	45000.00	45000.00
5. Gross Profit at Farm Gate	Rs.			-57461.33	143013.68
6. Cost Per colony	Rs.			9371.45	1352.45
7. B/C ratio				0.75	5.23

Annex 7: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Kavre

Crop: Apis cerena
Species: Cerena
No of Colony : 25

Year: 2016/2017
Condition: Hill

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			154825.65	34825.65
a. Human Labour	Day	3.00	2000.00	6000.00	6000.00
b. Bee colony	No	25.00	4800.00	120000.00	
c. Supplement feeding	Kg.	10.00	100.00	1000.00	1000.00
d. Honey comb foundation	Kg.	10.00	205.00	2050.00	2050.00
e. Pesticides/Insecticides	No	2.00	180.00	360.00	360.00
f. Sprayer Use	Hour	1.00	180.00	180.00	180.00
g. Transportation/migration charge	Rs.			16000.00	16000.00
h. Others	Rs.			4000.00	4000.00
i. Interest on Variable Cost	Rs.			5235.65	5235.65
2. Fixed Cost	Rs.			115875.00	3050.00
a. Bee hive	No	25.00	4000.00	100000.00	
b. Hive stand	No	25.00	370.00	9250.00	
c. Frame feeder	No	50.00	90.00	4500.00	
d. Bee cap	No	5.00	425.00	2125.00	
e. Hive tool	Rs.			1400.00	
f. Honey extractor	No	1.00	8000.00	8000.00	
g. Gloves	Pair	5.00	350.00	1750.00	1750.00
h. Others	Rs.			1300.00	1300.00
3. Total Cost	Rs.			270700.65	37875.65
4. Gross Income	Rs.			158000.00	158000.00
a. Main Product-Honey	K.G.	360.00	425.00	153000.00	153000.00
b. By-Product-Honey wax	K.G.	20.00	250.00	5000.00	5000.00
c. Bee colony w/o hive	No	10.00	4850.00	48500.00	48500.00
5. Gross Profit at Farm Gate	Rs.			-112700.65	120124.35
6. Cost Per colony	Rs.			10828.03	1515.03
7. B/C ratio				0.58	4.17

Annex 8: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Lamjung

Crop: Apis cerena
Species: Cerena
No of Colony : 25

Year: 2016/2017
Condition: Hill

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			139559.40	33309.40
a. Human Labour	Day	4.00	1550.00	6200.00	6200.00
b. Bee colony	No	25.00	4250.00	106250.00	
c. Supplement feeding	Kg.	10.00	90.00	900.00	900.00
d. Honey comb foundation	Kg.	10.00	250.00	2500.00	2500.00
e. Pesticides/Insecticides	No	2.00	175.00	350.00	350.00
f. Sprayer Use	Hour	1.00	140.00	140.00	140.00
g. Transportation/migration charge	Rs.			14000.00	14000.00
h. Others	Rs.			4500.00	4500.00
i. Interest on Variable Cost	Rs.			4719.40	4719.40
2. Fixed Cost	Rs.			95150.00	3050.00
a. Bee hive	No	25.00	3200.00	80000.00	
b. Hive stand	No	25.00	340.00	8500.00	
c. Frame feeder	No	50.00	85.00	4250.00	
d. Bee cap	No	5.00	480.00	2400.00	
e. Hive tool	Rs.			1350.00	
f. Honey extractor	No	1.00	8250.00	8250.00	
g. Gloves	Pair	5.00	350.00	1750.00	1750.00
h. Others	Rs.			1300.00	1300.00
3. Total Cost	Rs.			234709.40	36359.40
4. Gross Income	Rs.			151190.00	151190.00
a. Main Product-Honey	K.G.	350.00	415.00	145250.00	145250.00
b. By-Product-Honey wax	K.G.	22.00	270.00	5940.00	5940.00
c. Bee colony w/o hive	No	10.00	4350.00	43500.00	43500.00
5. Gross Profit at Farm Gate	Rs.			-83519.40	114830.60
6. Cost Per colony	Rs.			9388.38	1454.38
7. B/C ratio				0.64	4.16

Annex 4: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Gulmi

Crop: Apis cerena

Year: 2016/2017

Species: Cerena

Condition: Hill

No of Colony : 25

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			137489.40	31239.40
a. Human Labour	Day	3.00	1400.00	4200.00	4200.00
b. Bee colony	No	25.00	4250.00	106250.00	
c. Supplement feeding	Kg.	10.00	90.00	900.00	900.00
d. Honey comb foundation	Kg.	10.00	250.00	2500.00	2500.00
e. Pesticides/Insecticides	No	2.00	165.00	330.00	330.00
f. Sprayer Use	Hour	1.00	160.00	160.00	160.00
g. Transportation/migration charge	Rs.			15000.00	15000.00
h. Others	Rs.			3500.00	3500.00
i. Interest on Variable Cost	Rs.			4649.40	4649.40
2. Fixed Cost	Rs.			99050.00	2625.00
a. Bee hive	No	25.00	3350.00	83750.00	
b. Hive stand	No	25.00	360.00	9000.00	
c. Frame feeder	No	50.00	80.00	4000.00	
d. Bee cap	No	5.00	460.00	2300.00	
e. Hive tool	Rs.			1000.00	
f. Honey extractor	No	1.00	8000.00	8000.00	
g. Gloves	Pair	5.00	325.00	1625.00	1625.00
h. Others	Rs.			1000.00	1000.00
3. Total Cost	Rs.			236539.40	33864.40
4. Gross Income	Rs.			159325.00	159325.00
a. Main Product-Honey	K.G.	325.00	475.00	154375.00	154375.00
b. By-Product-Honey wax	K.G.	18.00	275.00	4950.00	4950.00
c. Bee colony w/o hive	No	10.00	4000.00	40000.00	40000.00
5. Gross Profit at Farm Gate	Rs.			-77214.40	125460.60
6. Cost Per colony	Rs.			9461.58	1354.58
7. B/C ratio				0.67	4.70

Annex 9: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Bara

Fish: Chinese carp

Year: 2016/2017

Species: Common Carp

Condition: Terai

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			654844.50	654844.50
a. Human Labour	month	12.00	8500.00	102000.00	102000.00
b. Fingerlings (3-5 gm size)	No	15000.00	3.00	45000.00	45000.00
c. Pond maintenance	Ha	1.00	7000.00	7000.00	7000.00
d. Lime	Kg.	500.00	18.00	9000.00	9000.00
e. Water purification and oxidation	Ha	1.00	42000.00	42000.00	42000.00
f. Feed	Kg.	6000.00	42.00	252000.00	252000.00
g. Organic manure/Dung	Kg.	10000.00	1.90	19000.00	19000.00
h. Chemical fertilizer	Kg.	1800.00	44.00	79200.00	79200.00
i. Fuel	Rs.			10500.00	10500.00
j. Electricity	Rs.			12000.00	12000.00
k. Small tools	Rs.			20000.00	20000.00
h. Others	Rs.			35000.00	35000.00
i. Interest on Variable Cost	Rs.			22144.50	22144.50
2. Fixed Cost	Rs.			1205000.00	106500.00
a. Depreciation	Rs.			0.00	6500.00
b. Maintenance cost	Rs.			30000.00	55000.00
c. Communication	Rs.			12000.00	12000.00
d. Fuel and frieght	Rs.			15000.00	15000.00
e. Pond construction and water filling	Rs.			900000.00	0.00
f. Stores	Rs.			110000.00	0.00
g. Net, Pumps, Machines and balance, Aerators	Rs.			120000.00	0.00
h. Others	Rs.			18000.00	18000.00
3. Total Cost	Rs.			1859844.50	761344.50
4. Gross Income	Rs.			1248000.00	1248000.00
a. Main Product-Fish	K.G.	4800.00	260.00	1248000.00	1248000.00
5. Gross Profit at Farm Gate	Rs.			-611844.50	486655.50
6. Cost Per Kg	Rs.			387.47	158.61
7. B/C ratio				0.67	1.64

Annex 14: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Kanchanpur

Fish: Chinese carp

Year: 2016/2017

Species: Common Carp

Condition: Terai

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			671404.50	671404.50
a. Human Labour	month	12.00	9000.00	108000.00	108000.00
b. Fingerlings (3-5 gm size)	No	15000.00	3.00	45000.00	45000.00
c. Pond maintenance	Ha	1.00	8500.00	8500.00	8500.00
d. Lime	Kg.	600.00	18.00	10800.00	10800.00
e. Water purification and oxidation	Ha	1.00	45000.00	45000.00	45000.00
f. Feed	Kg.	6250.00	40.00	250000.00	250000.00
g. Organic manure/Dung	Kg.	10000.00	1.95	19500.00	19500.00
h. Chemical fertilizer	Kg.	1800.00	43.00	77400.00	77400.00
i. Fuel	Rs.			12500.00	12500.00
j. Electricity	Rs.			12000.00	12000.00
k. Small tools	Rs.			25000.00	25000.00
h. Others	Rs.			35000.00	35000.00
i. Interest on Variable Cost	Rs.			22704.50	22704.50
2. Fixed Cost	Rs.			1188500.00	101500.00
a. Depreciation	Rs.			0.00	6500.00
b. Maintenance cost	Rs.			28500.00	55000.00
c. Communication	Rs.			15000.00	15000.00
d. Fuel and frieght	Rs.			15000.00	15000.00
e. Pond construction and water filling	Rs.			900000.00	0.00
f. Stores	Rs.			100000.00	0.00
g. Net, Pumps, Machines and balance, Aerators	Rs.			120000.00	0.00
h. Others	Rs.			10000.00	10000.00
3. Total Cost	Rs.			1859904.50	772904.50
4. Gross Income	Rs.			1431000.00	1431000.00
a. Main Product-Fish	K.G.	5400.00	265.00	1431000.00	1431000.00
5. Gross Profit at Farm Gate	Rs.			-428904.50	658095.50
6. Cost Per Kg	Rs.			344.43	143.13
7. B/C ratio				0.77	1.85

Annex 10: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Rautahat

Fish: Chinese carp
Species: Mangoor

Year: 2016/2017
Condition: Terai

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			651015.00	651015.00
a. Human Labour	month	12.00	9000.00	108000.00	108000.00
b. Fingerlings (3-5 gm size)	No	15000.00	3.00	45000.00	45000.00
c. Pond maintenance	Ha	1.00	7500.00	7500.00	7500.00
d. Lime	Kg.	500.00	18.00	9000.00	9000.00
e. Water purification and oxidation	Ha	1.00	45000.00	45000.00	45000.00
f. Feed	Kg.	6000.00	40.00	240000.00	240000.00
g. Organic manure/Dung	Kg.	10000.00	1.80	18000.00	18000.00
h. Chemical fertilizer	Kg.	1800.00	40.00	72000.00	72000.00
i. Fuel	Rs.			12500.00	12500.00
j. Electricity	Rs.			12000.00	12000.00
k. Small tools	Rs.			25000.00	25000.00
h. Others	Rs.			35000.00	35000.00
i. Interest on Variable Cost	Rs.			22015.00	22015.00
2. Fixed Cost	Rs.			1185000.00	101500.00
a. Depreciation	Rs.			0.00	6500.00
b. Maintenance cost	Rs.			25000.00	55000.00
c. Communication	Rs.			15000.00	15000.00
d. Fuel and frieght	Rs.			15000.00	15000.00
e. Pond construction and water filling	Rs.			900000.00	0.00
f. Stores	Rs.			100000.00	0.00
g. Net, Pumps, Machines and balance, Aerators	Rs.			120000.00	0.00
h. Others	Rs.			10000.00	10000.00
3. Total Cost	Rs.			1836015.00	752515.00
4. Gross Income	Rs.			1260000.00	1260000.00
a. Main Product-Fish	K.G.	4500.00	280.00	1260000.00	1260000.00
5. Gross Profit at Farm Gate	Rs.			-576015.00	507485.00
6. Cost Per Kg	Rs.			408.00	167.23
7. B/C ratio				0.69	1.67

Annex 12: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Kapilbastu

Fish: Chinese carp
Species: Mangoor

Year: 2016/2017
Condition: Terai

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			676683.00	676683.00
a. Human Labour	month	12.00	9000.00	108000.00	108000.00
b. Fingerlings (3-5 gm size)	No	15000.00	3.00	45000.00	45000.00
c. Pond maintenance	Ha	1.00	8000.00	8000.00	8000.00
d. Lime	Kg.	650.00	18.00	11700.00	11700.00
e. Water purification and oxidation	Ha	1.00	48000.00	48000.00	48000.00
f. Feed	Kg.	6000.00	42.00	252000.00	252000.00
g. Organic manure/Dung	Kg.	10000.00	2.10	21000.00	21000.00
h. Chemical fertilizer	Kg.	1800.00	42.00	75600.00	75600.00
i. Fuel	Rs.			12500.00	12500.00
j. Electricity	Rs.			12000.00	12000.00
k. Small tools	Rs.			25000.00	25000.00
h. Others	Rs.			35000.00	35000.00
i. Interest on Variable Cost	Rs.			22883.00	22883.00
2. Fixed Cost	Rs.			1180000.00	101500.00
a. Depreciation	Rs.			0.00	6500.00
b. Maintenance cost	Rs.			20000.00	55000.00
c. Communication	Rs.			15000.00	15000.00
d. Fuel and frieght	Rs.			15000.00	15000.00
e. Pond construction and water filling	Rs.			900000.00	0.00
f. Stores	Rs.			100000.00	0.00
g. Net, Pumps, Machines and balance, Aerators	Rs.			120000.00	0.00
h. Others	Rs.			10000.00	10000.00
3. Total Cost	Rs.			1856683.00	778183.00
4. Gross Income	Rs.			1402500.00	1402500.00
a. Main Product-Fish	K.G.	5500.00	255.00	1402500.00	1402500.00
5. Gross Profit at Farm Gate	Rs.			-454183.00	624317.00
6. Cost Per Kg	Rs.			337.58	141.49
7. B/C ratio				0.76	1.80

Annex 13: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Banke

Fish: Chinese carp
Species: Silver Carp

Year: 2016/2017
Condition: Terai

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			645322.50	645322.50
a. Human Labour	month	10.00	9000.00	90000.00	90000.00
b. Fingerlings (3-5 gm size)	No	15000.00	3.00	45000.00	45000.00
c. Pond maintenance	Ha	1.00	7500.00	7500.00	7500.00
d. Lime	Kg.	500.00	18.00	9000.00	9000.00
e. Water purification and oxidation	Ha	1.00	45000.00	45000.00	45000.00
f. Feed	Kg.	6000.00	40.00	240000.00	240000.00
g. Organic manure/Dung	Kg.	10000.00	2.15	21500.00	21500.00
h. Chemical fertilizer	Kg.	1800.00	45.00	81000.00	81000.00
i. Fuel	Rs.			12500.00	12500.00
j. Electricity	Rs.			12000.00	12000.00
k. Small tools	Rs.			25000.00	25000.00
h. Others	Rs.			35000.00	35000.00
i. Interest on Variable Cost	Rs.			21822.50	21822.50
2. Fixed Cost	Rs.			1190000.00	107000.00
a. Depreciation	Rs.			0.00	7000.00
b. Maintenance cost	Rs.			30000.00	60000.00
c. Communication	Rs.			15000.00	15000.00
d. Fuel and frieght	Rs.			15000.00	15000.00
e. Pond construction and water filling	Rs.			900000.00	0.00
f. Stores	Rs.			100000.00	0.00
g. Net, Pumps, Machines and balance, Aerators	Rs.			120000.00	0.00
h. Others	Rs.			10000.00	10000.00
3. Total Cost	Rs.			1835322.50	752322.50
4. Gross Income	Rs.			1365000.00	1365000.00
a. Main Product-Fish	K.G.	5250.00	260.00	1365000.00	1365000.00
5. Gross Profit at Farm Gate	Rs.			-470322.50	612677.50
6. Cost Per Kg	Rs.			349.59	143.30
7. B/C ratio				0.74	1.81

Annex 11: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Rupandehi

Fish: Chinese carp
Species: Silver Carp

Year: 2016/2017
Condition: Terai

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER HECTARE					
1. Variable Cost	Rs.			689517.00	689517.00
a. Human Labour	month	12.00	9200.00	110400.00	110400.00
b. Fingerlings (3-5 gm size)	No	15000.00	3.00	45000.00	45000.00
c. Pond maintenance	Ha	1.00	9000.00	9000.00	9000.00
d. Lime	Kg.	600.00	18.00	10800.00	10800.00
e. Water purification and oxidation	Ha	1.00	55000.00	55000.00	55000.00
f. Feed	Kg.	6250.00	40.00	250000.00	250000.00
g. Organic manure/Dung	Kg.	10000.00	2.05	20500.00	20500.00
h. Chemical fertilizer	Kg.	1800.00	45.00	81000.00	81000.00
i. Fuel	Rs.			12500.00	12500.00
j. Electricity	Rs.			12000.00	12000.00
k. Small tools	Rs.			25000.00	25000.00
h. Others	Rs.			35000.00	35000.00
i. Interest on Variable Cost	Rs.			23317.00	23317.00
2. Fixed Cost	Rs.			1187000.00	101500.00
a. Depreciation	Rs.			0.00	6500.00
b. Maintenance cost	Rs.			25000.00	55000.00
c. Communication	Rs.			15000.00	15000.00
d. Fuel and frieght	Rs.			15000.00	15000.00
e. Pond construction and water filling	Rs.			900000.00	0.00
f. Stores	Rs.			100000.00	0.00
g. Net, Pumps, Machines and balance, Aerators	Rs.			122000.00	0.00
h. Others	Rs.			10000.00	10000.00
3. Total Cost	Rs.			1876517.00	791017.00
4. Gross Income	Rs.			1326000.00	1326000.00
a. Main Product-Fish	K.G.	5200.00	255.00	1326000.00	1326000.00
5. Gross Profit at Farm Gate	Rs.			-550517.00	534983.00
6. Cost Per Kg	Rs.			360.87	152.12
7. B/C ratio				0.71	1.68

Annex 15: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER RACEWAY (200 M²)

DISTRICT: Rasuwa

Fish: Rainbow trout

Year: 2016/2017

Species:

Condition: Terai

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER Raceway (200 m²)					
1. Variable Cost	Rs.			1184040.00	1184040.00
a. Human Labour	No	12.00	12000.00	144000.00	144000.00
b. Fry (2 gm size)	No	15000.00	9.00	135000.00	135000.00
c. Water purification	Rs.			5000.00	5000.00
d. Feed for table fish and advanced fry	Kg.	7000.00	115.00	805000.00	805000.00
e. Fuel	Rs.			20000.00	20000.00
f. Electricity	Rs.			12500.00	12500.00
g. Small tools	Rs.			15000.00	15000.00
h. Others	Rs.			7500.00	7500.00
i. Interest on Variable Cost	Rs.			40040.00	40040.00
2. Fixed Cost	Rs.			1112500.00	62500.00
a. Depreciation	Rs.			0.00	15000.00
b. Maintenance cost	Rs.			0.00	25000.00
c. Communication	Rs.			12500.00	12500.00
d. Raceway construction and water supply system (200 m ²)	Rs.			850000.00	0.00
e. Stores/Feed house	Rs.			200000.00	0.00
f. Net, Pumps, Machines and balance, Aerators, Graders	Rs.			40000.00	0.00
g. Others	Rs.			10000.00	10000.00
3. Total Cost	Rs.			2296540.00	1246540.00
4. Gross Income	Rs.			1995000.00	1995000.00
a. Main Product-Fish	K.G.	2850.00	700.00	1995000.00	1995000.00
5. Gross Profit at Farm Gate	Rs.			-301540.00	748460.00
6. Cost Per Kg	Rs.			805.80	437.38
7. B/C ratio				0.87	1.60

Annex 16: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER RACEWAY (200 M²)

DISTRICT: Nuwakot

Fish: Rainbow trout

Year: 2016/2017

Species:

Condition: Terai

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER Raceway (200 m²)					
1. Variable Cost	Rs.			1194131.25	1194131.25
a. Human Labour	No	12.00	12500.00	150000.00	150000.00
b. Fry (2 gm size)	No	15000.00	9.00	135000.00	135000.00
c. Water purification	Rs.			6250.00	6250.00
d. Feed for table fish and advanced fry	Kg.	7000.00	115.00	805000.00	805000.00
e. Fuel	Rs.			20000.00	20000.00
f. Electricity	Rs.			12500.00	12500.00
g. Small tools	Rs.			17500.00	17500.00
h. Others	Rs.			7500.00	7500.00
i. Interest on Variable Cost	Rs.			40381.25	40381.25
2. Fixed Cost	Rs.			1112500.00	75000.00
a. Depreciation	Rs.			0.00	27500.00
b. Maintenance cost	Rs.			0.00	25000.00
c. Communication	Rs.			12500.00	12500.00
d. Raceway construction and water supply system (200 m ²)	Rs.			850000.00	0.00
e. Stores/Feed house	Rs.			200000.00	0.00
f. Net, Pumps, Machines and balance, Aerators, Graders	Rs.			40000.00	0.00
g. Others	Rs.			10000.00	10000.00
3. Total Cost	Rs.			2306631.25	1269131.25
4. Gross Income	Rs.			1852500.00	1852500.00
a. Main Product-Fish	K.G.	2850.00	650.00	1852500.00	1852500.00
5. Gross Profit at Farm Gate	Rs.			-454131.25	583368.75
6. Cost Per Kg	Rs.			809.34	445.31
7. B/C ratio				0.80	1.46

Annex 17: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER RACEWAY (200 M²)

DISTRICT: Kaski

Fish: Rainbow trout

Year: 2016/2017

Species:

Condition: Terai

Particular	Unit	Quantity	Price	(First Year) Value in Rs.	(Second Year) Value in Rs.
A. AVERAGE COST OF PRODUCTION PER Raceway (200 m²)					
1. Variable Cost	Rs.			1142122.50	1142122.50
a. Human Labour	No	12.00	10500.00	126000.00	126000.00
b. Fry (2 gm size)	No	15000.00	9.00	135000.00	135000.00
c. Water purification	Rs.			6000.00	6000.00
d. Feed for table fish and advanced fry	Kg.	6800.00	115.00	782000.00	782000.00
e. Fuel	Rs.			18500.00	18500.00
f. Electricity	Rs.			12500.00	12500.00
g. Small tools	Rs.			16000.00	16000.00
h. Others	Rs.			7500.00	7500.00
i. Interest on Variable Cost	Rs.			38622.50	38622.50
2. Fixed Cost	Rs.			1162500.00	79000.00
a. Depreciation	Rs.			0.00	32500.00
b. Maintenance cost	Rs.			0.00	24000.00
c. Communication	Rs.			12500.00	12500.00
d. Raceway construction and water supply system (200 m ²)	Rs.			875000.00	0.00
e. Stores/Feed house	Rs.			225000.00	0.00
f. Net, Pumps, Machines and balance, Aerators, Graders	Rs.			40000.00	0.00
g. Others	Rs.			10000.00	10000.00
3. Total Cost	Rs.			2304622.50	1221122.50
4. Gross Income	Rs.			1995000.00	1995000.00
a. Main Product-Fish	K.G.	2850.00	700.00	1995000.00	1995000.00
5. Gross Profit at Farm Gate	Rs.			-309622.50	773877.50
6. Cost Per Kg	Rs.			808.64	428.46
7. B/C ratio				0.87	1.63

Annex 18: AVERAGE COST OF PRODUCTION & PROFIT MARGIN PER HECTARE

DISTRICT: Dhading

Crop: Marigold

Year: 2016/2017

Variety: Local

Condition: Irrigated/Main Season

Planting Time: Asar/Shrawan

Harvesting Time: Aswin/Kartik

Particulars	Units	Quantity	Rs/Unit	Total
A. AVERAGE COST OF PRODUCTION PER HECTARE				
1. Variable Cost	Rs.			145011.89
a. Human Labor	Days	45	400	18000
b. Bullock Labor	Days	2	800	1600
c. Tractor Use	Hours	7	1250	8750
d. Pumpset Use	Hours	10	200	2000
e. Sprayer Use	Hours	1	200	200
f. Seed	Kg.	2	500	1000
g. Manure	Kg.	5000	1.5	7500
h. Fertilizer		0	0	
Urea	Kg.	50	30	1500
D.A.P	Kg.	30	50	1500
Potash	Kg.	25	36	900
i. Plant Protection Chemicals	Rs.			750
j. Land Lease	Rs.			15000
k. Management Cost	Rs.			5000
l. Interest on Variable Cost	Rs.			7304.92
2. Fixed Cost	Rs.			259
a. Land Tax	Rs.			120
b. Water Tax	Rs.			60
c. Repair and Maintenance	Rs.			300
d. Depreciation	Rs.			150
3. Total Costs	Rs.			145270.89
4. Gross Income at Farm Gate	Rs.			371533.55
a. Main Product	Kg.	2142.29	173.43	371533.551
5. Net Profit at Farm Gate	Rs.			226262.66
6. Production Cost Per Quintal	Rs.			6781.12
B. MARKETING AT NEAREST WHOLESALE MARKET				
a. Marketing Cost	Rs.			257.07
b. Value at Market	Kg.	2035.17	185.86	378251.15
c. Net Profit	Rs.			232723.19

Annex 19: AVERAGE COST OF PRODUCTION & PROFIT MARGIN

DISTRICT: Lalitpur

Crop: Red Rose

Year: 2016/2017

Condition: Green House (2000m²)

Particulars	Units	Quantity	Rs/Unit	(First Year) Total	(Second Year) Total
Fixed cost					
Green house construction	m2	2000	1500	3000000	
Machinery	piece	3	8500	25500	
Irrigation equipments	m2	2000	250	500000	
Store house	piece	1	400000	400000	
Water tank	no	2	60000	120000	
Sub total				4045500	
Variable cost					
Seed/Seedling/Sapling	Piece	12000	60	720000	
Compost fertilizer	Teep	50	5500	275000	275000
Chemical fertilizer	KG	1000	50	50000	50000
Micro nutrient	KG	2000	100	200000	200000
IPM	no	2	100000	200000	200000
Post harvest measures	Stick	480000	0.5	240000	240000
Labour-fulltime	No	10	120000	1200000	1200000
Labour-Part time	No	240	500	120000	120000
Packaging cost	Piece	1	300000	300000	300000
Land lease	Ropani	5	20000	100000	100000
Miscellaneous				150000	150000
Sub total				3555000	2835000
Grand total				7600500	2835000

SN	Year	Investment Phase	2	3	4	5
1	Total income (Rs)	4800000	4800000	4800000	4800000	4800000
2	Total cost	7600500	2835000	2835000	2835000	2835000
3	Profit/Loss	-2800500	1965000	1965000	1965000	1965000
4	B/C ratio	0.63	1.69	1.69	1.69	1.69

Annex 20: AVERAGE COST OF PRODUCTION & PROFIT MARGIN

DISTRICT: Kathmandu

Crop: Gypsophila

Year: 2016/2017

Condition: Green House (1000m²)

Particulars	Units	Quantity	Rs/Unit	(First Year) Total	(Second Year) Total
Fixed cost					
Green house construction	m2	1000	1500	1500000	
Machinery	piece	2	8500	17000	
Irrigation equipments	m2	1000	250	250000	
Store house	piece	1	400000	400000	
Water tank	no	1	60000	60000	
Sub total				2227000	
Variable cost					
Seed/Seedling/Sapling	Piece	4000	100	400000	
Compost fertilizer	Teep	30	5500	165000	165000
Chemical fertilizer	KG	600	50	30000	30000
Micro nutrient	KG	700	100	70000	70000
IPM	no	1	100000	100000	100000
Post harvest measures	Stick	16000	10	160000	160000
Labour-fulltime	No	7	120000	840000	840000
Labour-Part time	No	256	500	128000	128000
Packaging cost	Piece	1	150000	150000	150000
Land lease	Ropani	10	20000	200000	200000
Miscellaneous				150000	150000
Sub total				2393000	1993000
Grand total				4620000	1993000

SN	Year	Investment Phase	2	3	4	5
1	Total income (Rs)	3840000	3840000	3840000	3840000	3840000
2	Total cost	4620000	1993000	1993000	1993000	1993000
3	Profit/Loss	-780000	1847000	1847000	1847000	1847000
4	B/C ratio	0.83	1.93	1.93	1.93	1.93

Annex 21: AVERAGE COST OF PRODUCTION & PROFIT MARGIN

DISTRICT: Bhaktapur

Crop: Limonium

Year: 2016/2017

Condition: Green House (1000m²)

Particulars	Units	Quantity	Rs/Unit	(First Year) Total	(Second Year) Total
Fixed cost					
Green house construction	m2	1000	1600	1600000	
Machinery	piece	6	9000	54000	
Irrigation equipments	m2	1000	250	250000	
Store house	piece	1	500000	500000	
Water tank	no	1	60000	60000	
Sub total				2464000	
Variable cost					
Seed/Seedling/Sapling	Piece	5000	115	575000	
Compost fertilizer	Teep	30	5500	165000	165000
Chemical fertilizer	KG	700	50	35000	35000
Micro nutrient	KG	800	100	80000	80000
IPM	no	1	200000	200000	200000
Post harvest measures	Stick	25000	10	250000	250000
Labour-fulltime	No	8	120000	960000	960000
Labour-Part time	No	182	500	91000	91000
Packaging cost	Piece	1	300000	300000	300000
Land lease	Ropani	3	25000	75000	75000
Miscellaneous				150000	150000
Sub total				2881000	2306000
Grand total				5345000	2306000

SN	Year	Investment Phase	2	3	4	5
1	Total income (Rs)	8125000	8125000	8125000	8125000	8125000
2	Total cost	5345000	2306000	2306000	2306000	2306000
3	Profit/Loss	2780000	5819000	5819000	5819000	5819000
4	B/C ratio	1.52	3.52	3.52	3.52	3.52

Annex 22: AVERAGE COST OF PRODUCTION & PROFIT MARGIN

DISTRICT: Kathmandu

Crop: Gerbera

Year: 2016/2017

Condition: Green House (1000m²)

Particulars	Units	Quantity	Rs/Unit	(First Year) Total	(Second Year) Total
Fixed cost					
Green house construction	m2	1000	1600	1600000	
Machinery	piece	4	25000	100000	
Irrigation equipments	m2	1000	250	250000	
Store house	piece	1	400000	400000	
Water tank	no	1	60000	60000	
Sub total				2410000	
Variable cost					
Seed/Seedling/Sapling	Piece	6500	80	520000	
Compost fertilizer	Teep	50	2500	125000	125000
Chemical fertilizer	KG	1500	50	75000	75000
Micro nutrient	KG	1000	100	100000	100000
IPM	no	1	100000	100000	100000
Post harvest measures	Stick	480000	0.5	240000	240000
Labour-fulltime	No	7	120000	840000	840000
Labour-Part time	No	240	500	120000	120000
Packaging cost	Piece	1	300000	300000	300000
Land lease	Ropani	5	20000	100000	100000
Miscellaneous				50000	50000
Sub total				2570000	2050000
Grand total				4980000	2050000

SN	Year	Investment Phase	2	3	4	5
1	Total income (Rs)	3250000	3250000	3250000	3250000	3250000
2	Total cost	4980000	2050000	2050000	2050000	2050000
3	Profit/Loss	-1730000	1200000	1200000	1200000	1200000
4	B/C ratio	0.65	1.59	1.59	1.59	1.59

Annex 23: AVERAGE COST OF PRODUCTION & PROFIT MARGIN

DISTRICT: Kathmandu

Crop: Carnation

Year: 2016/2017

Condition: Green House (1000m²)

Particulars	Units	Quantity	Rs/Unit	(First Year) Total	(Second Year) Total
Fixed cost					
Green house construction	m2	1000	1600	1600000	
Machinery	piece	4	25000	100000	
Irrigation equipments	m2	1000	250	250000	
Store house	piece	1	400000	400000	
Water tank	no	1	60000	60000	
Sub total				2410000	
Variable cost					
Seed/Seedling/Sapling	Piece	16000	30	480000	
Compost fertilizer	Teep	50	2500	125000	125000
Chemical fertilizer	KG	1500	50	75000	75000
Micro nutrient	KG	1000	100	100000	100000
IPM	no	1	100000	100000	100000
Post harvest measures	Stick	480000	0.5	240000	240000
Labour-fulltime	No	6	120000	720000	720000
Labour-Part time	No	240	500	120000	120000
Packaging cost	Piece	1	300000	300000	300000
Land lease	Ropani	5	20000	100000	100000
Miscellaneous				150000	150000
Sub total				2510000	2030000
Grand total				4920000	2030000

SN	Year	Investment Phase	2	3	4	5
1	Total income (Rs)	3200000	4000000	4000000	4000000	4000000
2	Total cost	4920000	2030000	2030000	2030000	2030000
3	Profit/Loss	-1720000	1445000	1445000	1445000	1445000
4	B/C ratio	0.65	1.97	1.97	1.97	1.97

