

**ECONOMICS OF PRODUCTION AND MARKETING OF
KHOA IN OSMANABAD DISTRICT OF MARATHWADA
REGION**

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**ECONOMICS OF PRODUCTION AND MARKETING OF KHOA
IN OSMANABAD DISTRICT OF MARATHWADA REGION**

DISSERTATION

*Submitted to the
Vasantrao Naik Marathwada Krishi Vidyapeeth,
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in partial fulfilment of the requirement of the degree
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**MASTER OF SCIENCE
(Agriculture)
IN**

AGRICULTURAL ECONOMICS

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MAY, 2018

CANDIDATE'S DECLARATION

I hereby declare that the dissertation

or a part thereof has not been

Previously submitted by me

for a degree of any

University or

Institute

Place: Parbhani

Date: / / 2018

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CERTIFICATE - I

This is to certify that the dissertation entitled “**ECONOMICS OF PRODUCTION AND MARKETING OF KHOA IN OSMANABAD DISTRICT OF MARATHWADA REGION**” submitted by **Ms. KAWADE MONIKA JAYSING** to the Vasantrao Naik Marathawada Krishi Vidyapeeth, Parbhani in partial fulfilment of the requirements for the degree of **MASTER OF SCIENCE (Agriculture)** in the subject of **AGRICULTURAL ECONOMICS** is record of original and bonafide research work carried out by her under my guidance and supervision. It is of sufficiently high standard to warrant its presentation for the award of the said degree.

I also certify that the dissertation or part thereof has not been previously submitted by her for a degree of any university

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CERTIFICATE II

This is to certify that the dissertation entitled “**ECONOMICS OF PRODUCTION AND MARKETING OF KHOA IN OSMANABAD DISTRICT OF MARATHWADA REGION**” submitted by **Ms. KAWADE MONIKA JAYSING** to the Vasantrya Naik Marathwada Krishi Vidyapeeth, Parbhani in partial fulfillment of the requirements for the degree of **MASTER OF SCIENCE (Agriculture)** in the subject of **AGRICULTURAL ECONOMICS** has been approved by the Student’s advisory committee after viva-voce examination in collaboration with the external examiner.

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*“All power is within you,
You can do anything and everything,
Believe in that do not believe that you are weak,
Stand up and express the divinity with you”
(Swami Vivekanand)*

Achievement is of no mean, without the sense of gratefulness and the recognition of this is the beginning of wisdom.

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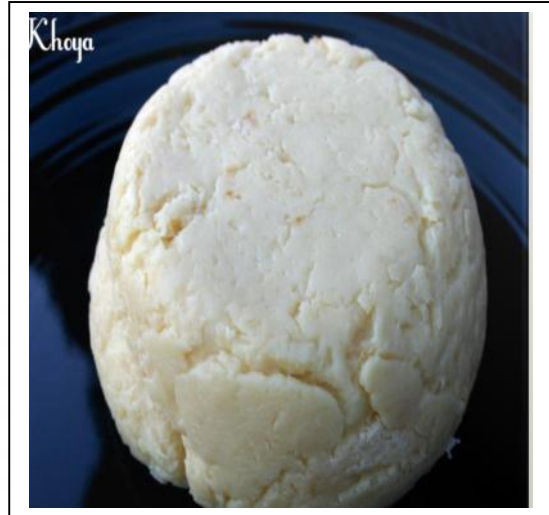
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LIST OF ABBREVIATIONS

%	-	Per cent
/	-	Per
Agril.	-	Agriculture
e.g.	-	Exempli gratia (For example)
Econ.	-	Economics
<i>et al.</i>	-	et alia (and others)
etc.	-	Etcetera
Fig.	-	Figure
Ha	-	Hectare
i.e.	-	That is
J.	-	Journal
kg	-	Kilogram
MH	-	Maharashtra
MT	-	Metric tonnes
Co-op	-	Co-operative
Qty.	-	Quantity
Res.	-	Research
Univ.	-	University
Viz.,	-	Videlicet (namely)
@	-	at the rate
Mktg	-	Marketing
FC	-	Fixed Cost
MP	-	Marginal Product
MC	-	Marginal Cost
Asso	-	Association
Vol	-	Volume



Introduction



CHAPTER - I

INTRODUCTION

Livestock is an integral part of the agricultural production system in India and plays an important role in national economy as well as in socio-economic development of millions of rural households. The role of livestock sub-sector is crucial in respect of nutrition, employment and income in the economy of the rural people of the country. Livestock is an important source of animal protein for farm families through the consumption of milk, dairy products, eggs and meat. In addition to their use as source of food, livestock are also used for draft purpose in agriculture and transport. Livestock dung is used to enrich soil fertility. Sale of livestock and livestock products make a considerable proportion of the rural farmer's cash income. About 65 per cent of population living in the rural area depends on agriculture and allied activities for their livelihood which is now days not sufficient to earn the rural masses. Hence, there exists a need of subsidiary occupation like poultry keeping, sheep and goat rearing, cattle breeding etc. to supplement the farm income in agriculture sector. Subsidiary occupation provides a continuous income and employment to landless agricultural labour, farmers and unemployed youth etc. Dairy enterprise plays a major role in increasing milk production, improving nutritional standards of the people, generating employment opportunities, improving income levels in rural areas, especially for small and marginal farmers. Livestock is the best enterprise against the vagaries of nature like drought, famine and other natural calamities.

Milk has been used as an article of food since ancient time of India. It plays an important role in diet. In India share of milk and its products is largest after cereals and it accounts 16 per cent of total food expenditure. According to United Nation's Food and Agriculture Organization (FAO, 1999), India has become single largest milk producer nation in world, with anticipated milk production of 155.49 million tonnes during 2015-16. India is among the world's largest and fastest growing market for milk and milk products. During

last five years the average annual incremental milk production was over 6 MT. Estimated per capita availability in 2015-16 was 337 gm per day with an increase of 4.7 per cent over the previous year. (NDDB)

Marketing of milk and milk products in India is mainly done through the "organized sector" as well as "unorganized" sector. The unorganized sector accounts for 88 per cent of total milk production in India and it includes marketing of raw milk and traditional products such as locally manufactured ghee, fresh cheese and sweets. The organized sector accounts for 10-12 per cent of total milk production in India and it includes the dairy cooperatives and organized private dairies which produces western-style dairy processed products based on pasteurization. It has been estimated that about 50-55 per cent of milk produced in India is being converted into a variety of traditional dairy products of which is about 60 thousand metric tonnes of khoa is being produced.

Being highly perishable in nature and lack of cooling facilities milk cannot be stored for longer time at the room temperature prevailing in India. Due to these reason simple processes were developed to produce products like curds (yoghurt-like fermented product), Makkhan (butter), Khoa (desiccated milk product), Chhana, Paneer (soft cottage cheese-like cultured product) and Ghee (clarified butter) (FAO, 2001). Nearly 7 per cent of milk produced in India is converted to khoa (ICMR, 2000). Apart from the traditional method of manufacturing of khoa many other methods were developed recently for the manufacture and storage of khoa.

In India khoa is traditionally manufactured by continuous boiling of milk in a shallow iron or stainless steel vessel to remove moisture and the process continues till the total solid level is attained the range of 65 to 72 per cent (Pal and Raju, 2006). Khoa sold by different name such as Pindi, Danedar, Dhap, Mawa which is obtained from cow or buffalo milk or milk solids or a combination of both by rapid desiccation and having not less than 30 per cent milk fat on dry weight basis. Khoa has a uniform whitish colour with just a

tinch of brown, a slightly oily or granular texture, and a rich nutty flavour which is associated with a mildly cooked and sweet taste due to the high concentration of lactose. About 60 thousand metric tons of khoa is produced annually in India which utilize 7 per cent of total milk production (Aneja, 1997). Nearly 36 per cent of India's khoa production takes place in Uttar Pradesh. The traditional trade usually pays for milk on the basis of the yield of khoa (with 28 per cent moisture). The quality of khoa produced from buffalo milk is superior to khoa produced from cow milk because khoa from cow milk results in moist surface, salty taste with sticky and sandy texture which is not considered suitable for the preparation of sweets. Also, buffalo milk results in higher yield of khoa.

Khoa is a rich source of energy. The food and nutritive value of khoa is very high. It contains large quantities of muscle building proteins, bone forming minerals, and energy giving fat and lactose. Khoa contain 75-80 per cent moisture, 25-37 per cent fat, 17-20 per cent protein, 22-25 per cent lactose and 3.6-3.8 per cent ash (Aneja *et al.* 2002). It is also expected to retain most of the fat soluble vitamins A and D and also fairly large quantities of water soluble B vitamins contained in the original milk.

Khoa has unique importance because it is liked by all classes of society. It forms an important base for preparation of milk sweets which are an integral part of Indian food heritage. Depending on end use Khoa has been categorized into three major groups i.e. Pindi (for Burfi), Pindi (for Burfi, Peda), Dhap (Gulabjamun) and Danedar (Kalakand) on the basis of composition, texture and end use. All these products are in demand and required for making value added khoa based milk products like Burfi, Peda, Gulabgamun, Kalkand. These products may be potential source of export. Khoa is also used for stuffing vegetables in many food itmes. Khoa has considerable economic and dairy importance to Indian population. In India, milk sweets have been an indispensable part of the socio-cultural life. They reflect the wealth and status of people, while forming an important part of their

cuisine. These are offered on special religious occasions, social events and festivals. The market for Indian milk based sweets is expanding overseas also.

NEED OF STUDY

Osmanabad is one of the major milk producing districts in Maharashtra which is scattered in organised and unorganised sectors. Out of total milk production, most of the milk is produced in rural areas. As all the milk produced in the district is not sold as raw milk, most of the surplus milk is converted into khoa and Peda. Khoa is prepared and marketed in all tahsils of Osmanabad district which include Washi, Bhoom, Paranda, Kalamb, Tuljapur, Umarga, Lohara and Osmanabad. These tahsils of Osmanabad district supplies khoa to Aurangabad, Pandharpur, Pune, Mumbai and some districts of Karnataka and Hyderabad. Even having more khoa production in Osmanabad district no investigation has been done with objective which determines cost of production and marketing of khoa in different talukas of district.

Scope of study

The study will be helpful to extension workers and khoa producers. It will provide information on various aspects of khoa production. The results of study will throw light on per kg cost of production of khoa, marketing cost of khoa, marketing channel, market efficiency. The information of per litre cost of milk production helps in knowing the returns from milk production and profitability of dairy animals which is useful for the department of animal husbandry and policy makers. Study of marketing efficiency of different milk marketing channels will help to identify the efficient channel functioning in the milk marketing chain and costs and margins of different agencies. The study will also helpful for transforming into a potential viable unit.

Limitation of study

1. Data was selected by survey method and it was limited to Washi tehsil in Osmanabad district.
2. Results are based on the study of one academic year only.

OBJECTIVES

1. To study socio- economic characteristics of khoa producers
2. To estimate cost and return in khoa production
3. To identify marketing channels, marketing cost, market margin, price spread and marketing efficiency in khoa marketing
4. To examine the constraints faced by khoa producers

HYPOTHESIS

1. Per kg net profit from khoa production is more than raw milk.
2. Producer's share in consumer rupee in marketing of khoa is less.



Review of Literature



CHAPTER - II

REVIEW OF LITERATURE

2.1 Socio-economic characteristics of khoa producers

Kadam (2001) studied crop livestock farming system in scarcity zone of Maharashtra and result of study revealed that most of family members in the various farming systems were educated up-to high school level. The highest number of building per family was found in crop buffalo farming system and the highest number of implements per family was observed in crop-buffalo followed by crop-sheep farming system.

Khadase (2004) studied economics of various farming systems in Marathwada region and found that majority of farmers were above 36 years. The proportion of non-illiterate members was 28 per cent, while proportion of family members having education upto secondary and college level were above 12 per cent each per farm.

George and Chavan (2004) studied Profile characteristics of dairy farmers of Ernakulum district. The analyses of profile revealed that majority of the respondents were middle aged, primary or up-to metric level educated with medium family size. Majority of them were clustered in medium group with respect to social participation, extension contact and mass media exposure.

Gangasagare *et al.* (2009) studied the Status of milk production and economic profile of dairy farmers in the Marathwada region of Maharashtra. Study revealed that about 59 per-cent of the dairy farmers belong to general (unreserved) category, 25 per cent were backward class and only 8 per-cent each of SC and S.T. The landless dairymen equally contributed with dairymen having (large) land; 13 landless dairymen reported comparable lactation yield with 8 dairymen holding 10 ha land. The significant differences among the means indicated that as the number of milch animals increased, the herd lactation performance decreased. The animals maintained by joint family were not properly cared for while they were cared properly by single family.

Binkadakatti *et al.* (2012) result of study revealed that majority (40%) of the farmers belonged to middle age group, followed by old age (31.67%) and young age group (28.33%). The reason for this may be due to the fact that dairying is a recurrent income generating programme. In case of education level, majority 40 per-cent of the farmers had education up to the Middle School, followed by Primary (30.00%) and High school (15.00%), the results may be due to the fact that the respondents may feel that it is not important to undergo formal education and even if they are interested. Regarding family type, 70 per-cent of the farmers had joint family type and remaining 30 per-cent of the farmers belonged to nuclear family type. And further, with respect to land holding of the respondents, majority (31.67%) of the farmers had land up to 2.51 to 5 acres and they were under small farmers groups followed by medium farmers (21.67%) and marginal farmers (18.33%). Majority of the farmers (53.33%) belonged to medium overall knowledge level followed by high (26.67%) and low knowledge level (20.00%). It is due to the less awareness about the improved dairy practices, poor communication between the farmers and the extension workers, scientist and other development departments.

Mali *et al.* (2014) the present study was conducted during the year 2012-13 in Belgaum district of Karnataka state. The findings of the socio-economic profile of dairy and non-dairy farmers revealed that dairy farmers (54.17%) and non-dairy farmers (51.39%) belonged to old age, educated up to high school level (26.39% and 27.78%, respectively), medium annual income (50% and 43.06%, respectively), big size of landholding (45.83% and 40.28% respectively), medium and low experience in dairying (48.61% and 100% respectively), high economic motivation (37.50% and 50%, respectively) and engaged with business along with agriculture (100% and 51.39%, respectively). Education, annual income and economic motivation showed positive and significant correlation at 5 per-cent level of probability with knowledge level. Land holding, dairy experience and subsidiary occupation showed positive and significant relationship at 1 per-cent level of probability. The remaining two

variables namely, age and family size did not establish any significant relationship with knowledge level.

Suraj and Raju (2014) studied Socio-economic status of milk producers of primary milk Societies. The empirical results show that majority of members are above poverty line and 55.6 per-cent of them earn between Rs. 5,000 to 10,000 per month. The study also reveals that nearly 77 per-cent of the respondents are happy with the dairy business but 60 per-cent of them responded that new generation of their family should not continue with the same business.

Sabapara *et al.* (2014) study revealed that majority of the dairy farmers were belonged middle to old age group, literate, nuclear type of family having more number of children making big size family. Majority of the respondents were from scheduled tribe and other backward category having medium level of extension contacts and mass media exposure with membership in one organization. Majority of the respondents were falling under marginal to small categories farmers with small herd size and they possessed agriculture and livestock as their livelihood. The education, caste, land holding, animal holding size, extension contact and mass media exposure of the respondents were positively and significantly related, whereas vocational diversification was negatively related with knowledge of dairy farmers regarding improved dairy husbandry practices in the study area.

Reddy *et al.* (2015) the study revealed about socio economic characteristics of the farmer based on education level, type of family, the main source of income, and annual income of the family. The study also did on a number of crops growing in a year, main crop that grows in a year, the kind of seeds using, kind of fertilizer using, irrigation facilities and etc. 52 per-cent of the farmers are taking the land on lease. 49 per-cent of the farmers are purchasing inputs from direct purchase which means from the dealer. 48 per-cent of the farmers are purchasing the inputs through cash. 73 per-cent of the farmers are showing positive intense towards farming. 59 per-cent of the

farmers grow two crops in a year, 58 per-cent of the farmers are using hybrid variety of seeds. 58 per-cent of the farmers are using only chemical fertiliser.

Mooventhan *et al.* (2016) this exploratory study was conducted in the tribal populated districts of Chhattisgarh state. About 65.33 percent of the tribal farmers were between 36 and 50 years of age group, more than one fourth (34.67%) of the farmers were educated up to primary school level, less than half (39.00%) of the respondents had subsistence dairy farming + Minor forest products collection + labour as their sole occupations, nearly half (43.67%) of the respondents were marginal farmers, more than half (62.00 %) of the farmers were found with medium level of farming experience, about half (49.00 %) of the respondents were at the income range of Rs. 25,001 to Rs. 75,000. About half (44.67 %) of the respondents falling under the category of medium herd size followed by 35.67 percent in small and 19.66 per-cent in large herd size, more than half (56.33%) of the tribal dairy farmers falling under the category of subsistence level of dairy production system.

Sarita *et al.* (2016) studied Socio-economic and psychological characteristics of 120 dairy farmers of Hisar district. The findings of the study revealed that majority of the respondents were middle aged, literate having nuclear family with medium family size. Majority of the respondents were falling under small land holding and some of them were landless with small and medium herd size. Further study revealed that majority of dairy farmers was having low extension contact as well as low level of mass media exposure. Majority of them had medium economic motivation but showed very poor social participation.

Vekariya *et al.* (2016) studied Socio-Economic Profile of Maldhari Dairy-farmers of South Saurashtra Region. The results indicate that majority (70.83 %) of the Maldhari dairy farmers belonged to middle age group, 40.83 per-cent of them educated up to secondary level and 78.33 per-cent from them belonged to OBC category, majority (59.17 %) of Maldhari dairy farmers had medium annual income, 47.50 per-cent of Maldhari dairy

farmers had large size of family and 70.83 per-cent of them belonged to joint family, majority (54.17%) of Maldhari dairy farmers had animal husbandry plus agriculture as main occupation. The socio-economic parameters viz. extension participation among Maldhari farmers was of medium level, they had medium level of experience in animal husbandry activities, used medium level of sources of information and had small heard size of animals.

2.2 Cost and return in khoa production:

Sangu (2004) studied on economical evaluation of indigenous milk products production in western Uttar pradesh with a sample size consisted of 20 milk product producing units. The component wise production and marketing cost of khoa, paneer and ghee revealed that per kg cost of khoa, paneer, and ghee was estimated at the rate of Rs. 63.75, Rs 62.73 and Rs 136.88, respectively. The share of fixed cost in total cost was ranged from 1.40 to 1.64 per cent only. The cost incurred on raw milk was the highest in the total cost (74.60 to 90.65%) followed by fuel cost (2.90 to 9.89%), and labour cost (2.92 to 5.49 %). Khoa was sold in Delhi market therefore, the marketing cost of Khoa was more (Rs. 4.8 per kilogram) in comparison to Paneer (0.56 per kilogram) and Ghee (Rs. 0.58 per kilogram) due to transportation cost. Production cost of one kilogram product was arrived at Rs. 58.94, Rs. 62.17 and Rs.136.30 for Khoa, Paneer and ghee, respectively.

Chauhan *et al.* (2005) had undertaken a study on profitability in milk products manufacturing in a dairy plant. The dairy plant which was consider for study is an ISO-9002 dairy plant having installed capacity of 60,000 litres per day situated in the north-eastern area of Haryana state. Required data were taken for the year April 2000 to march 2001 on the various aspects from the records maintained at the dairy plant for working out the economics of manufacturing of different dairy products. The plant under study was classified into two departments' namely main department and auxiliary department.

These sections provide information on the final findings and interpretation of the investigation under subsections. Sub section 1 deals with component ghee manufacturing as depicted Rs. 120.97 per kg of which the maximum cost was shared by raw arterial i.e. 94.01 per-cent. The cost of manufacturing was depicted to be Rs. 8.43 per litre.

Hembade *et al.* (2009) studied cost analysis of traditionally manufactured *ujani-basundi*. The actual production of all the studied products was more than their break-even production levels; therefore, the production of indigenous milk products is a profitable job in rural areas.

The interest on fixed cost was dominating item of expenditure. The lowest cost was spent towards license fee and taxes. In variable cost, milk contributes major amount of cost as compared to other costs. In the manufacturing process, the only non-milk product added was the sugar. All the manufacturers use wood as a fuel for preparation of the product, which cost about Rs. 9.10 per kg of product. Per kg cost of production was about Rs. 79.08 per kg and market sale price was Rs. 100 per kg. The cost and return analysis indicated that the net fixed cost and variable cost was Rs. 3.47 and Rs. 75.61 per kg, respectively. The only non milk ingredient used was sugar and costs only Rs. 1.90 per kg of product but contributes to large return reason behind this is sugar is cheaper than milk solid not fat. Hence total cost of production was about Rs. 79.08 per kg. This product was sold in the market at the rate of Rs. 100 per kg. Therefore, the average net return is Rs. 20.92 per kg of the product. It was concluded that this product requires less expenditure and obviously results to a huge return.

Landge *et al.* (2010) the study shown that cost of production of milk cake product was Rs. 27.96 with packaging material, this profit might be increased due to value added milk product i.e., deshi ghee. The non-dairy product contributes about 140 gm of weight in one kg of product and cost just Rs. 2.80 which helped to increase return from product because it is cheaper than the based wheat flavour confection viz. Satori, solids in the milk. The

product sold in market at the rate of Rs. 110 per kg. This required net total cost for production about Rs. 79.54 and Rs. 82.04 without of manufacturing, packaging and storage of milk cake and with packaging material.

Ghule (2010) conducted a study on “Economics of milk production and its disposal pattern on commercial dairy farms in Ahmednagar District of Maharashtra” and found that the cost per litre of milk was worked out to be Rs. 12.49, Rs. 12.58 and Rs. 11.48 on small, medium and large farm, respectively with an overall average of Rs. 12.18 per litre for milch crossbred cow whereas for milch buffalo, it was Rs. 26.78 on large farm. Net returns per litre of milk in case of milch cattle were Rs. 1.57, Rs. 1.36 and Rs. 3.30 on small, marginal and large category respectively.

Prasad (2010) in a study on economic analysis of dairy production systems in Nanded district of Maharashtra found that total feed cost per milch animal across various dairy production systems was highest (Rs. 68.61) for CB based system in CMP zone and lowest (Rs. 21.78) for LC based system in CV zone. The share of feed cost to gross cost ranged between 52 to 70 per-cent. The contribution of dry fodder cost to total feed cost was much higher compared to shares of other feed components except in case of CB based system in which share of concentrates was higher than other feed components. Net returns were observed highest (Rs. 41.70) for CB based system in CMP zone and lowest (Rs. 11.07) in case of local cow of LC+BF based system in CMP zone. The net returns per litre were highest (Rs. 5.98) for BF based system in CMP zone and lowest (Rs. 7.28) in case of local cow of LC+BF based system in CMP zone.

Bhogal *et al.* (2013) studied the Economics of production and marketing of milk products in cooperative sector presented that Ghee is the important dairy product produced at khatima dairy plant with a daily production of 200 kg. It is being sold at various places within the district at specified milk parlours the important disposal places are Rudrapur, Sitarganj, Khatima. The price of ghee by the plant from the consumer was found at Rs.

200 per kg and the agent price was Rs. 190 per kg, on the other hand the average cost of making ghee by Khatima dairy plant come Rs. 169.6 per kg. The most important cost component of ghee was found to be the procurement cost of milk (Rs. 130.02) which is around 76 per-cent of the total cost. For obvious reasons, the cost by raw material (milk) in it contributes the most (Rs. 126 per kg). The cost of processing of ghee comes to Rs. 6.4 per kg i.e., about 3.71 per-cent of the total cost.

Kaware and Yadav (2014) studied the costs and returns of commercial cattle farm forms an important base in determining its profitability. The six large commercial dairy herd and six migratory cattle herds were studied from Ahmednagar, Pune and Kolhapur districts of Western Maharashtra in 2007-08. The per farm feeding cost shared 70.23, 68.24 and 55.71 per-cent of the total cost for in-house cow, buffalo in-house and migratory dairy cow herd, respectively. The net per litre production cost of milk production was worked out to Rs. 15.08 which was the highest in buffalo in-house farm, followed by Rs. 9.12 in-house cow farm and for migratory cow herd it was Rs. 8.10. Input-output ratio was the highest (1.66) in in-house cow followed by migratory cow herds (1.60). It can be concluded that, the cow in-house owners were relatively more efficient in managing the cows as compared to the other categories of herds.

Raju *et al.* (2014) result of study revealed that the average cost of production per litre milk was Rs. 14.27 and the average net return per litre of milk was Rs. `8.28. The input-output ratio was worked out 1.58 at overall level. The cost C was Rs. 1867599.61 per dairy farm and Rs. 333449.99 per milch animal and the net income was `Rs. 1053011.60 per dairy farm and Rs. 18803.77 per animal. In term of milk production as well as production traits, the Holstein Friesian and Jersey cows were more superior to buffaloes and local cows. Average milk production per lactation was 129374 litre per dairy farm and 4173 litre per animals. Out of total milk production, 7.47 per-cent was consumed as fluid milk and 7.79 per cent used in processing for ghee, Dahi at

home and remaining 84.74 per cent milk was sold as fluid milk. In general, 9.96 per cent milk was sold to the consumers directly, 19.35 per cent to the Hotel/Halwaies and 70.69 per cent milk was sold to the dairy plants.

Manish *et al.* (2015) the results of the study showed that maintenance cost of a cow and buffalo for a year was found Rs. 25655 and Rs. 30311, respectively. Out of total maintenance cost, 80 per-cent was the variable cost and 20 per-cent was as the fixed cost for both cow and buffalo. With respect to various categories, the maintenance cost of buffalo and cow was found a little lower in small category than large category. This may be due to poor management by small category than large category. The average annual gross returns per cow and buffalo were observed Rs. 46953 and Rs. 60102 respectively, which is much higher than in case of cow. Average annual net returns per cow and buffalo were Rs. 21198 and Rs. 29790 respectively. Net returns per cow and buffalo too increased with the size of herds. The higher returns in large category were mainly due to higher number of cross-breed cows and better feeding of feeds and fodders than the other category.

Jadav *et al.* (2016) studied the cost, returns and benefits of rural and periurban livestock farmers in Surat district of south Gujarat. Result of study revealed that feed cost per standard animal unit per day was Rs. 70.65 in rural and Rs. 85.20 in periurban areas. Total expenditure of dairy animal per Standard Animal Units (S.A.U) per day was estimated to be Rs. 81.93 in rural and Rs. 105.25 in periurban areas. Net return of rural farmers was higher than periurban farmers. Total return per SAU per day was Rs. 120.95 in rural and Rs. 138.22 in periurban area. Net return per litre of milk production was Rs. 8.34 and Rs. 6.52 in rural and periurban areas respectively. Benefit cost ratio of rural and periurban livestock production system was 1.476 and 1.31 respectively. Majority of the respondents in both rural (65%) and periurban (75%) areas belonged to medium economic performance category.

Bairwa *et al.* (2016) result of study revealed that per day net maintenance cost was found higher for crossbred cow followed by buffalo and

local cow. The high maintenance cost for crossbred cow was found, with higher cost of concentrate fed to these animals. In case of buffalo, the higher cost of maintenance was found with higher cost of green fodder. The highest cost per litre was found, in case of local cow followed by buffalo and crossbred cow, which may possible due to low milk productivity of these local cows. Cost of milk per litre was found decreased with increase in herd size of milk producer across all type of animal breeds. Marketed surplus of milk was found more in the case of large herd size category of households and there was no much difference in the case of medium and small herd size category of household. The higher amount of marketed surplus was disposed off to milk cooperatives society near-by sixty per cent of total surplus milk.

2.3 Marketing channels, price spread, marketing cost, market margin and marketing efficiency in khoa production

Singh *et al.* (2000) conducted a study on economics of khoa and channa based products in Karnal market and reported overall variable and fixed cost was 92 per cent and 8 per cent, respectively. In case of channa based products, the average cost of all channa based sweets was ascertained to be Rs. 35.81 per kg and it was observed that overall net profit from khoa based sweets was Rs. 12.16 per kg and from channa was Rs. 14.76 per kg.

Devraj (2001) carried out study on price spread for liquid milk in various marketing channels in Karnataka and reported that marketing margins in the channel (producer—milk plant—consumer) were Rs. 2.02, Rs. 2.86 and Rs. 1.36 per litre of milk for three cooperative dairy plants and Rs. 1.08, Rs. 0.16 per litre of milk for two private dairy plants and concluded that marketing margins were higher for private plants.

Sujatha *et al.* (2004) studied the marketing structure, marketing cost, price spread and marketing efficiency for milk in the cooperative and private sectors of Andhra Pradesh. It was found that price spread was less in private sector, and hence, the consumer price was also less. Major constraints

identified in milk marketing were high feed cost, inadequate milk price, disease outbreak, poor credit facilities etc.

Vedamurthy and Chauhan (2005) conducted a study on economics of milk marketing in Shimoga district of Karnataka and observed that price received by household was the highest (Rs. 11) when they sold directly to consumer and lowest when they disposed off their milk to milk vendor and to processor. Marketing efficiency was the highest in channel I (producer—consumer) followed by channel II (producer—vendor—consumer) and channel III (producer— vendor—processor—consumer). Price spread was lowest in channel II. They concluded that both producer and consumer were better off when they adopt channel I.

Gizachew (2005) analysed factors affecting dairy household milk market entry decision using Logit model and marketed milk surplus using Tobit model in Ada'ha Liben district in Oromiya region by using data from 61 sampled dairy households. His study revealed that education level of the dairy household head, extension visits and income from non-dairy sources had positive relationship with household milk market entry decision, also found that dairy cow breed, loan, income and extension visit, education level of spouse and distance from milk market were related to marketed surplus positively however, distance from district and education level of the household head were related negatively with marketed milk supply. The study considered the dairy cow breed variable as dummy which is very difficult to see the marginal contribution of local and cross breed dairy cows.

Talathi *et al.* (2005) conducted a study on economics of marketing of sapota in Konkan region. They reported that commodity passes through four different channels of trade namely channel (I) producers - fruit merchants - commission agents – retailers – consumers, channel (II) producer - commission agents - retailers – consumers, channel (III) producers - cooperative society - commission agents - retailers – consumers and Channel (IV) Producers - fruit merchants - Hawkers - consumers. The producer share in

consumer rupee was the highest (34.40 per cent) in channel II and it was the lowest (28.39 per cent) in channel I.

Jha *et al.* (2006) studied on comparative study of co-operative and traditional milk societies in Kerala comparing two types of milk and cooperatives milk societies using well-structured interview schedule that was held of milk products and its marketing

The traditional milk societies are involved in milk procurement processing and marketing depends on working hours, facility available, input supply, payments to member farmer's collection and transportation of milk purchaser of milk, communication pattern. It may be concluded that traditional milk societies appear to be more profit making societies albeit these are less in character hence the traditional milk societies need to be studied in depth and find out the ways to get these organized for more efficient functioning

Yogi *et al.* (2007) carried out study in Rajasthan and observed that producers share in consumers rupee was 100 per cent in channel I (producer— consumer) because no market intermediary was involved. The producer's share in consumer's rupee was found the highest in channel I and price spread was observed the lowest in channel II (producer –halwai— consumer). Hence, channel II was considered efficient than channel III (producer—milk vendor—consumer) and channel IV (producer—milk vendor—contractor—consumer). The index value of marketing efficiency was observed higher in channel II (3.36). This supports that channel II was more efficient in comparison to other channels.

Kulkarni *et al.* (2010) studied on an economic analysis of khoa production and its marketing in 55 khoa producing areas from 11 talukas of Beed district during 2007-08 using multistage stratified randomly sampling technique. The study was further revealed that cost of production of khoa varies according to area of Milk production and geographical situation. The study further revealed that ever having profit margin in fluid milk production due to lack of milk collection centres lack of chilling facilities, and transportation

facilities. Milk producers in some area converted their milk into khoa as there was market for khoa than milk. Khoa marketed by different channels from rural to urban which increase marketing cost i.e., variable cost and net profit. Khoa is produced in Beed district which is transported to various cities like Pune, Mumbai and Aurangabad etc. for preparation of sweetmeat.

2.4 Constrains faced by khoa producer

Raquib *et al.* (2004) studied on economic analysis of yak milk processing unit. The result of study revealed that, the major constraint was the remoteness of the area, community facility, causing in collection of yak milk park from this production of milk is not adequate to meet the demand of the people constrains like illiteracy, lack of awareness marketing of the product in investment in this enterprise.

Rajendran and Mohanty (2004) result of study revealed that major constraint in milk marketing is the dominance of the unorganised sector. Changing dairy cooperative laws and regulations can reduce the unorganised sectors role in milk marketing.

Bandyopadhyay (2006) studied on the Technological advancement on traditional Indian desiccated and heat acid coagulated dairy products. Result shows that the following constraints:

Absence of mechanized production lines for large scale production, Labour intensive, energy inefficient methods of production, Absence of physic-chemical, micro-biological and textural standards for most of the products lead to in consistent product quality, Poor shelf life due to the absence of proper packaging systems, Lack of proper storage, transportation and distribution network.

Kumar *et al.* (2008) studied on constrains and solution for mechanization of dairy product manufacturing in north eastern India. The result of study shown that, traditional manufacturing practices of milk product that are adopted in most of the small and large sweetmeats shops in the northern

India are cumbersome time consuming labour intensive and difficult to attain high quality standard consequently chemical and organoleptic properties of dairy sweet vary to a great extent..

Amandeep (2006) studied constraints encountered by dairy farmers in adoption of improved dairy farming practices. Result of study revealed that poor results of A.I., unavailability or distance location of A.I. centers, inadequate facilities at A.I. center were important constraints in adoption of breeding practices. High price of concentrates, shortage of feed and fodder, lack of knowledge about balanced ration, were main constraints faced by dairy farmers in adoption of feeding practices. Lack of capital and labor were important constraints in adoption of housing practices. Unavailability of medicines was major constraints in adoption of calf management practices. Low economic gains, labour problem, ignorance about time of drying off were significant constraints in adoption of milking practices. Lack of knowledge about cause and control of diseases, lack of capital and labour were substantial constraints in adoption of health care and disease.

Verma (2007) study revealed that an unremunerative price of milk and milk products was the major constraint followed by delayed payment for milk and milk products, inadequate price for milk, poor credit facilities, disease outbreak, etc. Payments made in fractions were for the major factors which led the imperfect market situations and lower income to the producers in the region. However a large number of buffalo dairy entrepreneurs complained that the weak financial status, cost factor and management difficulties, non-availability of green fodder round the year, lack of improved breed of milch animals, lack of training about improved practices, low risk bearing capacity, high cost of fodder and concentrates, high cost of medicine, uncertainty of monsoon, lack of information about various development programmes, and non-availability of extension services were the major constraints confronted by the farmers in not maintaining good quality of animals on the farms

Patil *et al.* (2009) study revealed that majority of the respondents (72.44%) stated their constraint as low milk production from the local breeds, 45.33 per-cent as shortage of green fodder and 41.33 per-cent as lack of clean water while 25.33 per-cent stated lack of preservation facility as their constraint. Referring to the financial constraints, 78.22 per-cent respondents stated their constraint as delay in milk payment, 63.11 per-cent as inadequate money and lack of loan facility whereas high cost of concentrates as the constraint by 56.44 per-cent of the respondents. As regards technical constraints, majority of the respondents (68.00%) have stated their constraint as inadequate knowledge of diseases, their prevention and control while 56.89 per-cent have referred their constraint as non-availability of veterinary services.

Mhajan (2010) studied the constraints faced by rural and periurban dairy farms in Ludhiana district of Punjab. The constraints faced by dairy farmers were relatively low rate of conception through AI and repeat breeding in buffaloes and high rates of dry fodder, lack of mobile veterinary services and lack of emergency veterinary services.

Ray *et al.* (2010) studied on economic analysis of indigenous milk product manufacturing in West Tripura district in northern eastern region. The study revealed that, the constraints faced that the inform action complied for prioritization of constrained i.e., Less availability of skilled labour, high price of milk, price of other raw materials, adequate quantity of milk is not available, transportation problem, space problem and Market up and down problem stiff competition.

Rathod (2011) studied the Socio-personal profile and constraints of dairy farmers. The study revealed that majority of the farmers (72%) reported lack of timely Artificial Insemination (AI) facility followed by poor knowledge about Artificial Insemination (64%). Health care of the animals was a major constraint for majority (84%) of the dairy farmers since they lacked timely veterinary and health care services. The majority of respondents reported the problem of animal shed or the housing facilities. Farmers complained about

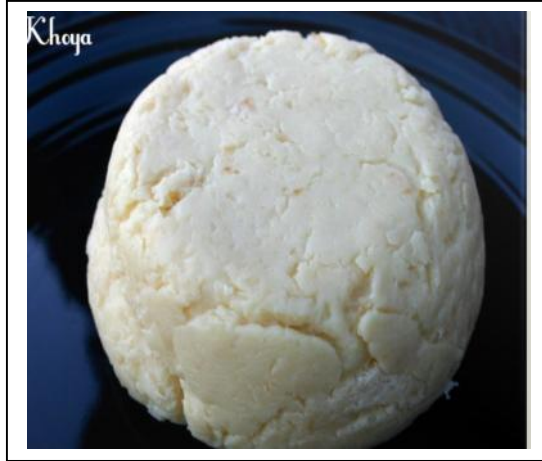
low price for milk. Majority of the farmers (74%) opined that youth were not interested in carrying out dairy farming for their livelihood. Further, 63 per cent of the respondents have reported low financial assistance to dairy sector as a major constraint in development of dairying in the region.

Binkadakatti *et al.* (2012) Study revealed that the cent per cent of the farmers expressed, disease as the major problem *i.e.*, foot and mouth, followed by pregnancy (50.00%) and cattle shed (43.33%). This is because of non-availability of clean drinking water for animals, non-timely availability of the artificial insemination and lack of space availability for cattle shed *i.e.*, most of the farmers had cattle shed inside their house.

Ravi *et al.* (2012) studied constraints faced by the tribal farmers in dairy farming in Udaipur district. The analysis revealed that the first and foremost constraint in dairy farming was non availability of green fodder throughout the year. Inadequate knowledge about proper or scientific feeding of dairy animals, non availability of cattle feed, high cost of concentrates, high cost of green fodder, high cost of dry fodder, lack of knowledge about mineral mixture. The first and major constraint in animal breeding was repeated breeding of milch animals. Low milk productivity of dairy animals was the first and major constraint in milk production. Lack of awareness about clean milk production and lack of knowledge about making value added dairy products were observed to be second and third constraints, respectively. Health constrains faced by farmer was lack of scientific housing, lack of knowledge about vaccination against contagious disease, lack of knowledge about isolation of sick animals and inadequate knowledge about deworming & dehorning of animals.

Pratibha *et al.* (2015) the study sought to identify the constraints faced by the farmers in using information communication technology (ICT) in plain and hill areas of Nainital district of Uttarakhand. The results of the analysis revealed four major categories of constraints in the plains viz. respondents' capacity, accessibility to ICT services, mobile use and network

coverage problems. The same categories of constraints were also identified in the hills in addition to another broad constraint category, viz. lack of training in hills. In hills, probability of constraints in operating ICT tools increased with decrease in contact with extension workers.



Methodology



CHAPTER - III

METHODOLOGY

Methodology is the way or process in which various stages of analysis are employed scientifically to elucidate the research problem. The aim of this chapter is to explain the approach, principles and procedures to be followed in conducting the research investigation. The detailed methodology used during the course of this study is described under the following sub-heads:

3.1 Sampling Design

3.2 Data Collection

3.3 Analytical Framework

3.1 General Characteristics of Osmanabad Districts:

3.1.1 Location

Osmanabad districts lies in the southern part of state. It lies on Deccan plateau, about 600m above the sea level. Part of Manjira and Terna river flow through the district. The district is located on east side of Marathwada region between latitude 17.35 to 18.40 degree north, and latitude 75.16 to 76.40 degree east. Osmanabad bordered by Beed district to north, Latur district to east, Sholapur to west, Ahemdnagar district to north West and Bidar and Gulbarga district of state of Karnataka to south. Most part of district lies in hilly areas of Balaghat range.

3.1.2 Climate

Osmanabad district has tropical climate. The summer here have a good deal of rainfall, while the winters have very little. This climate is considered to be Aw according to the Koppen-Geiger climate classification. The rainy season starts from mid-June and continues till end of September. The climate is humid in October and November and dry and cool from mid-November to January. From February to June the climate is dry and become increasingly hot during summer. The temperature of Osmanabad district is low as compared to other districts of Marathawada region. The average temperature

in the Osmanabad district is 25.8 °C. The maximum temp.of osmanabad district is 42 °C and minimum temp. of Osmanabad district is 8 °C.

The average annual rainfall in district is 833 mm.

3.1.3 Demographics

As per census 2011 Osmanabad district had population of 1,660,311. This gave it a ranking of 298th among district of India (out of total 640). The district had population density 219 per sq. Km. Its population growth rate over the decade 2001-2011 was 11.69 per cent. Osmanabad had a sex ratio of 920 females for every 1000 males and literacy rate of 76.33per-cent. The total number of household in Osmanabad district is 351281.

3.1.4 Cropping pattern

Both *kharif* and Rabi crop are taken in district. Main crops are Jowar, sunflower, gram, hybrid jowar, tur etc. About 5.70 lakh ha area was is under cultivated in both season. Area under *Kharif* crop is 3.26 lakh ha where as Rabi crop are sown on 3.47 lakh ha.

3.2 SAMPLING DESIGN

Sampling design is the blueprint for any research. The sampling techniques used in the present study were multistage random sampling to select tehsils, blocks and villages followed by the sampling units. The stage wise selection of sampling units is described in following subsections

3.2.1 Selection of District

Osmanabad district of Marathwada region was selected purposively for the study, because in the district khoa production is an inclusive occupation. Thus it was felt essential to study khoa production and its marketing in Osmanabad district

3.2.2 Selection of Talukas

There are 08 tahsils in Osmanabad district. In second stage Washi tahsil was purposively selected for the study because in Washi tahsil khoa production is traditionally revealed.

3.2.3 Selection of villages:

From selected tehsil 6 villages were selected randomly viz., Saramkundi, Yesvandi, Golegao, Kawadewadi, Sarola and Sonegao.

3.2.4 Selection of khoa producers:

From each selected villages 10 khoa producers whose occupation is agriculture plus khoa production were selected randomly. Thus for present study total sample size was constitutes of 60 khoa producers.

3.3 Collection of Data:

The data collected pertains to the year 2016-17. All the required information was collected from the khoa producer with the help of well designed pretested schedules. The list of the khoa producers were obtained by personal visit to the respective villages. The information on family size and composition, education, land holding, herd size, number of livestock, milking livestock, daily milk production, its consumption, milk used for khoa production, total khoa production, various inputs involved in khoa production and their cost, market information, transporting facilities and its charge, marketing cost were also collected. Further data were processed, tabulated and analysed.

3.4 Analytical techniques:

3.4.1 Tabular analysis:

Tabular analysis comprised of average, percentage and ratio. The first objective that is to know socio-economic characteristics of khoa producers was achieved by application of tabular analysis. The second objective that is to estimate cost, return and profitability in khoa production was achieved by application of tabular analysis with standard cost concept.

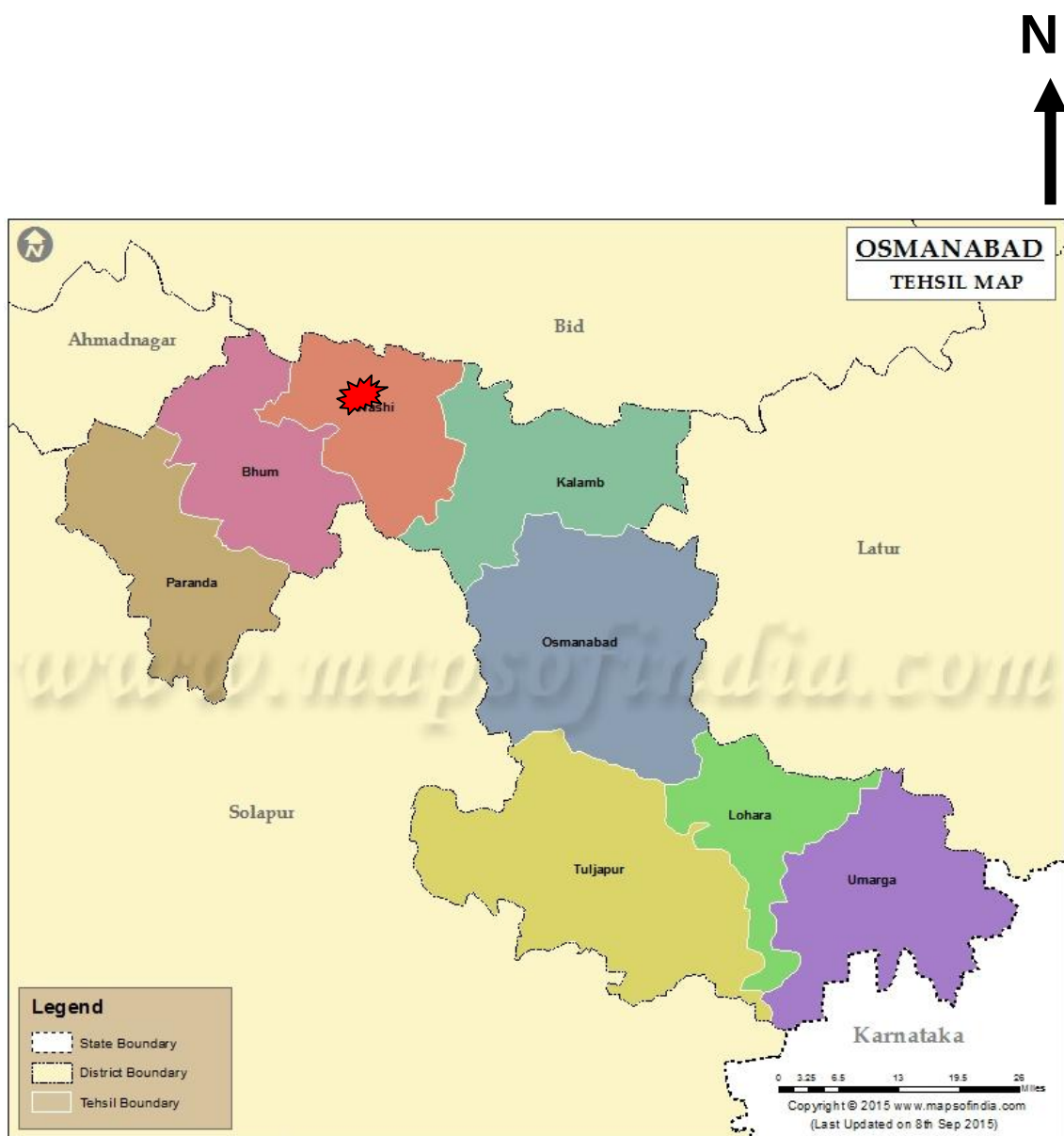


Fig. 3.1 MAP OF OSMANABAD TAHSIL

3.4.2 Cost concepts:

Cost of Khoa production was grouped in two categories Viz. Fixed and variable costs. Fixed cost includes all the costs of fixed assets utilised in khoa production and variable costs include costs incurred on inputs, raw milk, fuel, etc. The per kg cost of production was also worked out by using the cost concept fixed cost and variable cost

3.4.2.1 Fixed cost

Fixed costs are those which do not change in proportion to the quantity of milk procured in the short run. It includes depreciation of buildings and equipment .

Depreciation of building was worked out by taking 2 per cent of value and depreciation on equipment was worked out by taking 10 per cent of value.

3.4.2.2 Variable Cost

Variable costs are those costs which are incurred on the variable factors of production and can be altered in the short run. It includes milk cost, labour cost, fuel cost, transportation charges and miscellaneous charges. Per day expenditure on miscellaneous items per milch animal was worked out on the basis of daily and annual expenditure on these items.

The price of milk differs for different type of milk i.e., buffalo, crossbred cow and local cow milk. At village level average milk costs considered was Rs. 40 per liter for buffalo milk and Rs. 30 per liter for cow milk.

Labour cost included cost of family as well as paid labour (hired labour). The labour cost was considered on the basis of time required for khoa production and their respective charges. The charges were considered as Rs. 100 per half day.

The fuel cost was worked out on the basis of what type of fuel used in the khoa production by the selected sample producer and its respective

price at village level. The wooden fuel generally used by those all the khoa producers. The price of the wood at village level was Rs. 2 per kg.

Miscellaneous cost included the cost of repair of equipments, cost of gunny bags, etc.

3.5 Selection of khoa market:

Washi tahsil in which khoa production is carried out by traditional method was selected for khoa market study, because all the khoa producers marketed their produce in the tahsil. Washi market is also famous in Marathwada region for good quality khoa. Also khoa marketed from washi tahasil to Pune, Aurangabad, Mumbai and Hyderabad market.

3.6 Marketing aspects:

Marketing aspects includes different marketing channels, commission agents, wholesalers, marketing costs, packaging charges, transporting charges, producer's share in consumer's rupee and price spread.

3.6.1 Market Wholesaler / Commission Agent:

Market wholesalers are those who are specialised in performing various marketing functions involved in purchase and sale of produce from the producer including weighing charge. He plays the role of broker himself.

3.6.2 Marketing cost:

It is the total cost incurred in the marketing of khoa. The expenditure incurred by the wholesaler or commission agent, transportation charge, packaging charges in the khoa marketing was considered work out market cost.

3.6.3 Marketing channels:

Marketing channels is the way through which produce is passed from producer to consumer. In other word, it is the chain of intermediaries.

- I) Producer – Consumer
- II) Producer – Wholesaler – Consumer
- III) Producer – Wholesaler – Retailer – Consumer
- IV) Producer - Commission agent – Retailer – Consumer

3.6.4 Charges taken by commission agent.

Charges taken by commission agent was calculated by following formula,

$$C = C_F + C_{mi} + C_{m2} + C_{m3} + \dots + C_{mn}$$

Where,

C = Total cost of marketing,

C_F = Cost borne by the producer from the time at which the produce leaves the farm till the sale of the produce, and

C_{mi} = Cost incurred by the i^{th} middlemen in the process of buying and selling.

3.6.5 Market margin:

It is difference between price paid and price received by any specific marketing agencies such as wholesaler, retailer and commission agent.

3.6.6 Price Spread

The economic efficiency of marketing system is generally measured in terms of the price spread of an agricultural commodity. Price spread is difference between the price paid by the consumer and price received by the milk producer (Acharya and Agarwal, 2009, pp. 417). Smaller the price spread; greater will be the efficiency of marketing system.

As number of market intermediaries increases, price spread of produce also increases and vice versa. Marketing cost and marketing margin were worked out from actual data which were collected from market intermediaries.

The price spread was calculated by following formula,

$$P_s = P_c - P_f$$

Where,

P_s = Price spread

P_c = Price paid by Consumer

P_f = Price received by producer.

3.6.7 Producer's Share in Consumer's Rupee

It is the price received by the farmers and expressed as a percentage of the price paid by the consumer (Acharya and Agarwal, 2009, pp. 400-401). The producer's share was calculated with the following formula.

$$P_s = \frac{P_p}{P_C} \times 100$$

Where,

P_s = Producer's share in consumer rupee.

P_F = Price of the produce received by the producer.

P_C = Price paid by consumer.

3.6.8 Marketing Efficiency

Marketing Efficiency was calculated by using, **Acharya's** formula (Acharya and Agarwal, 2009, pp. 390)

$$MME = FP \div (MC + MM)$$

Where,

MME = Modified measure of marketing efficiency

FP = Price received by farmer

MC = Total Marketing Cost

MM = Marketing margins of intermediaries.

3.7 Constraints and suggestion:

Constraints and suggestion of khoa producer were achieved by applying frequency and percentage method.



Results and Discussion



CHAPTER – IV

RESULTS AND DISCUSSION

Khoa is of great commercial importance as it forms a base for preparation of numerous indigenous sweets throughout the country. Present estimate indicates that about 7 per cent of the total milk produced in India is utilised for khoa production. It is highly nutritious food having 90 per-cent digestibility coefficient of protein i.e., about 69 per-cent. It is an indisputable product having economic importance, especially in rural part of India as it provides good means of utilising economically small quantity of producer's surplus milk.

The technology of khoa manufacture, packaging and storage is simple. As khoa is prepared traditionally no more investment is needed. Depending upon requirements of milk, fuel, labour etc. investment pattern changes according to area. In hilly area fuel sources were cheaper, less price of milk, less processing cost, cheaper labour were available hence cost of milk production is less. The operational costs on fuel labour, packaging are within the control.

This chapter deals with the presentation of the results of data analysis. The process of production and marketing of khoa has been examined in the Washi taluka of Osmanabad district, to study various aspects such as Age, education and family size of khoa producer, livestock population of selected sample producers, economics of khoa production in Washi taluka, marketing cost, Market Margin, marketing channels, price spread, and producers share in consumer's rupee.

The data obtained from the selected khoa producers were analysed by keeping in view following objectives

1. To study the socio-economic characteristics of Khoa producers
2. To estimate Cost, returns structure in Khoa production

3. To identify marketing channels, marketing cost, Market Margin, price-spread and marketing efficiency in Khoa marketing
4. To know constraints faced by Khoa producers

4.1 Socio-economic characteristics of khoa producers

Frequency and percentage with respective socio-economic characteristics of khoa producers were calculated and are presented in Table 4.1.

General information of selected farmers

4.1.1 Age

Age is one of the important factors influencing enterprise attitude in various ways, which ultimately affects the managerial ability, skill and judgement and experience in business. It was observed from Table 4.1 that the most of producer 41.67 per- cent were above 50 year age group, followed by 36.67 per-cent were in the 35-50 year age group and 21.67 per- cent were up-to 35 year age group. This indicated that the older and experienced persons were looking towards the khoa business enterprises in the study area.

4.1.2 Education

Education is another important factor influencing managerial and technical ability about the khoa enterprises. It was observed from Table 4.1, that the most of khoa producers are literate. Out of total sample size most of producers 42.67 per-cent were educated up to secondary level, followed by 25 per-cent producers were educated up to higher secondary level, 23.33 per- cent producers were educated up to primary level, and only 3.33 per-cent were college level. 6.67 per-cent khoa producers were illiterate

4.1.3 Size of family

It was the factor affecting production and consumption. It also contributes towards supply of family labour to the enterprise and home consumption of milk. It was observed from Table 4.1 that 68.33 per-cent

family has more than 4 family members and 31.67 per-cent producers family has 1 to 4 family members.

Table 4.1 Socio-economic characteristics of the selected khoa producers

Sr. No	Particulars	Unit	Number N = 60	Percentage
1	Age	Years		
i	Up to 35		13	21.67
ii	35-50		22	36.67
iii	More than 50		25	41.67
2	Education level	score		
i	Illiterate		04	06.67
ii	Primary		14	23.34
iii	Secondary		25	41.67
iv	Higher secondary		15	25.00
	College level		02	03.33
3	Family size	no.		
i	1 to 4		19	31.67
ii	5 and above		41	68.33
4	Occupation	no.		
i	Agriculture		00	00.00
ii	Agri.+ Business		60	100.0
iii	Service		00	00.00
5	Land holding	ha	3.37	
i	Cultivated		2.80	83.08
ii	Grazing		0.38	11.27
	Fallow		0.19	05.63
6	Livestock	no.	4.57	
i	Drought animal		0.47	10.28
ii	Milch Cow		1.68	36.76
iii	Milch Buffalo		01.6	35.00
	Dry		0.82	17.94

4.1.4 Occupation

Occupation is most important factor influencing ability of working in agricultural business. In regard to occupational level, on an average it was implied that all khoa producers were engaged in agriculture sector i.e., farming plus khoa production.

4.1.5 Land

Land is most essential factor influencing ability of livestock feeding and milk production. On an average land holding of khoa producers were 3.37 ha, out of which share of cultivated land, grazing land and fallow land was 83.08 per-cent, 11.27 per-cent and 5.63 per-cent respectively.

4.1.6 Livestock

Livestock is the most important input producing factor in the khoa production business. In case of livestock, it was observed that average size of livestock were 4.57 out of which milch cow was 36.76 per-cent, average number of buffalo were 35 per-cent, dry animal were 17.94 per-cent and drought animal were 10.28 per-cent.

4.2 Cost and returns structure in Khoa production

Khoa production in India exists as a cottage industry in village and towns. As the production is unorganised it suffers from several shortcomings such as production in small and scattered units, lack of specialised collection centres, processing and marketing facilities. Resource availability in khoa production varies with wide range of individual manufacturing units and such costs and returns from this enterprise exhibit similar behaviour pattern. This study deals with respect of availability, use of resources and production of khoa in Washi Taluka seeks to provide estimates of costs and returns from khoa under different resources situations.

The study was confined to the khoa producers of Washi Taluka, because in Washi tahsil khoa production is traditionally revealed.

4.2.1 Average physical inputs and output in khoa production

The average physical inputs used in khoa production of selected sample producers in Washi tahsil of Osmanabad district as presented in Table 4.2.

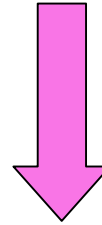
Variable inputs include quantity of milk, labour charges or wages, fuel and electricity from selected khoa producers used for khoa



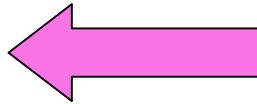
1. Boiling of Milk



2. Stirring of milk



4. Final product



**3. viscous product reaches a
pasty consistency**

Fig. 4.1 METHOD OF KHOA PRODUCTION

production. It was revealed from Table 4.2 that average quantity of milk used for the production of 12.24 kg khoa was 45.89 litres. Further it was observed that for the production of one kg khoa quantity of milk required was 3.75 litres.

From Table 4.2 it was observed that the quantity of fuel used as inputs in khoa production which was 48.95 kg for the production of 12.24 kg khoa. Further it was observed that per kg khoa production quantity of fuel required was 4.0 kg.

For the better management and the production of good quality khoa, skilled labour is essential. From Table 4.2 it was observed that the average quantity of labour required for the production of 12.24 kg khoa was calculated 4.17 hours and it was also seen that per kg khoa production the quantity of labours required was 0.34 hours.

Table 4.2. Per day average physical inputs and output in khoa production

Sr. No	Particulars	Unit	Per day Quantity	Per kg Quantity
1	Input			
i	Milk	litre	45.89	3.75
ii	Fuel required	kg	48.95	4.00
iii	Labour required	hr	4.17	0.34
iv	Electricity	unit	0.56	0.04
2	Output			
i	Khoa	kgs	12.24	1.00

4.2.2 Item wise expenditure in khoa production

4.2.2.1 Variable cost

Cost of milk is the major item of variable cost of khoa production which is the base of khoa production. It was observed from Table 4.3 that for the production of 12.24 kg khoa 45.89 litres of milk required which was amounted to be Rs. 1606.21 and milk cost for production of 1 kg khoa was Rs. 131.26. The share of cost of milk was 85.55 per cent to total average physical costs for khoa production.

Fuel is the energy source for khoa production as khoa is the heat desiccated milk product. It was revealed from Table 4.3 that about 48.95 kg

fuel required for the production of 12.24 kg khoa and that cost of fuel was Rs. 93.74. Cost of fuel in rural areas is comparatively less as compared to cities as the fuel is easily available in rural areas. From Table 4.3 it was also observed that per kg khoa production cost of fuel was Rs. 7.66. The share of fuel cost was 4.99 per cent in average khoa production cost.

Labour is required for stirring of milk continuously and giving fire to the equipment for the production of khoa. Continuously stirring is the art of khoa making, experienced and skilled persons are required for the production of khoa. From Table 4.3, it was found that for the production of 12.24 kg khoa labour was required for 4.17 hours which was amounted Rs. 125, it was 6.65 per cent to total average cost of khoa production. From Table 4.3 per kg khoa production labour cost was Rs. 10.21.

Table 4.3 Per day item-wise average expenditure in khoa production

Sr. No.	Particular	Average Cost (Rs)	Per kg Cost (Rs)	Percentage
1	Fixed investment			
i	Building	19458.33		---
ii	Equipments	2280		---
iii	Livestock	157200		---
	Total fixed investment	178,938.33		
2	Variable Costs			
i	Milk	1606.21	131.26	84.83
ii	Fuel required	93.74	7.66	4.95
iii	Labour required	125	10.21	6.60
	Electricity charges	2.83	0.23	0.15
iv	Interest on working capital	0.60	0.05	0.03
	Sub-Total	1828.38	149.38	96.56
3	Fixed costs			
i	Depreciation on Building	1.07	0.09	0.06
ii	Depreciation on Equipment	0.625	0.05	0.03
iii	Interest on fixed capital	63.64	5.20	3.36
	Sub-Total	65.33	5.34	3.45
	Total cost of production	1893.71	154.72	100.00

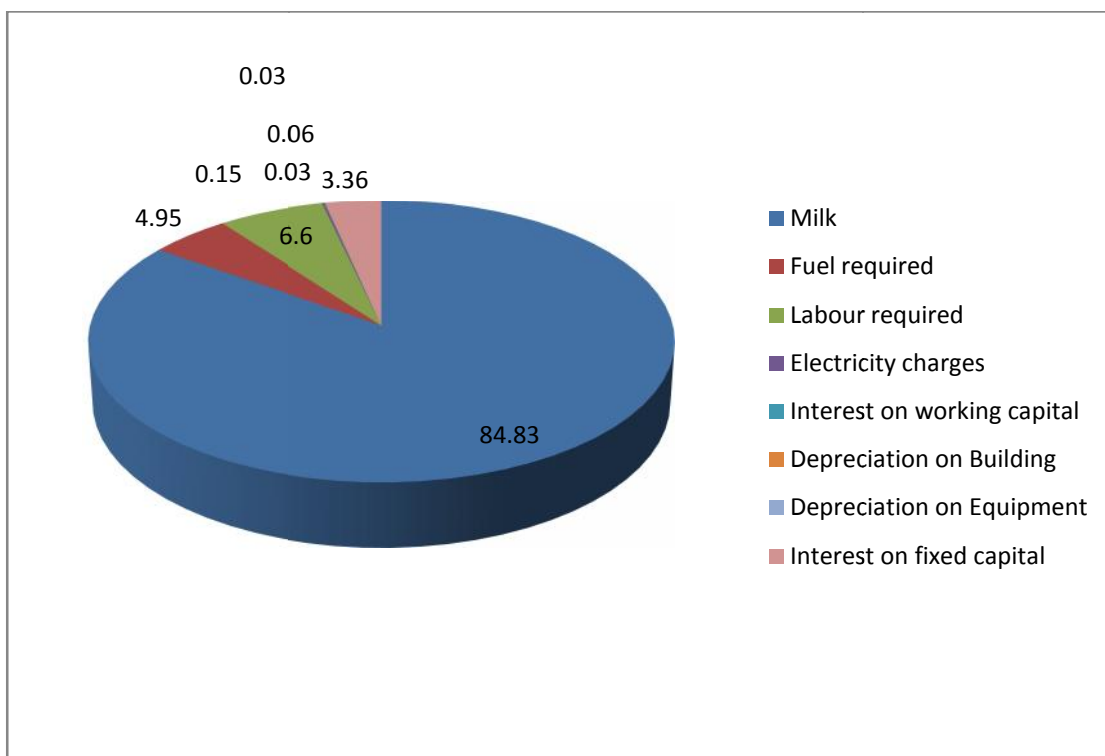


Fig.4.2 PERCENTAGE OF AVERAGE PHYSICAL COSTS

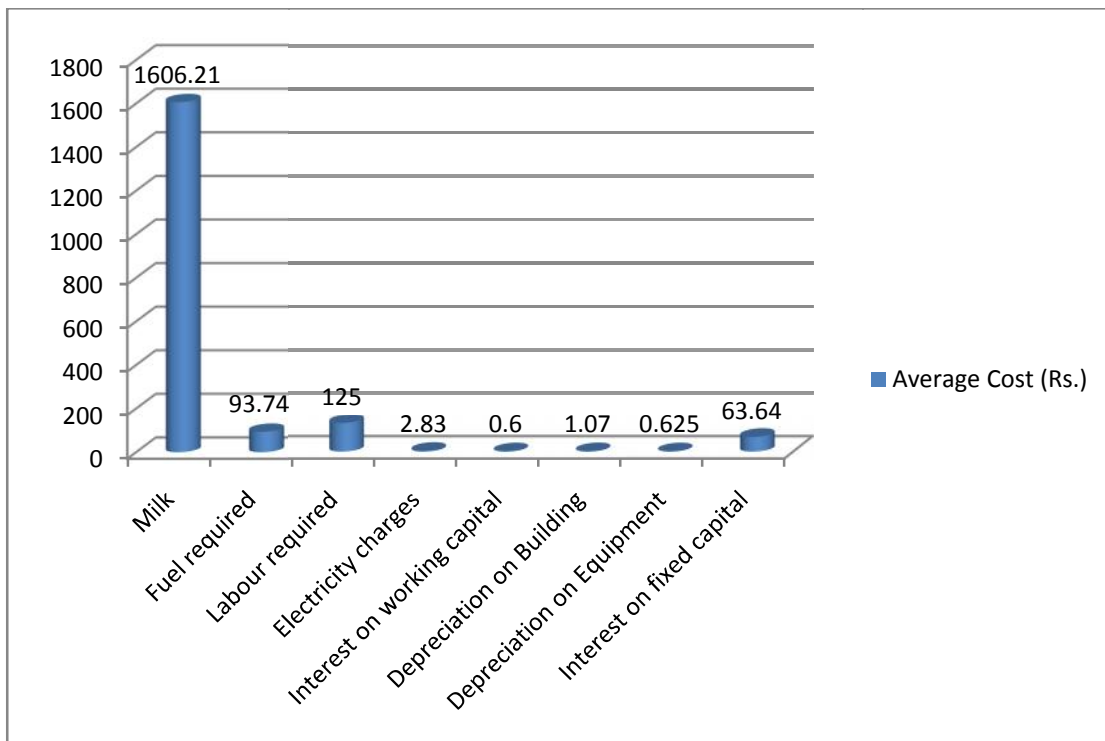


Fig.4.3 AVERAGE EXPENDITURE IN KHOA PRODUCTION

From Table 4.3 it was observed that Electricity charge required for the production of 12.24 kg khoa was Rs. 2.83 which shares about 0.15 per cent of total khoa production cost. It was also observed that electricity required for 1 kg khoa production Rs. 0.23.

Average physical inputs required for khoa production were estimated and presented in Table 4.3. On an average cost of milk was (Rs. 1606.21) followed by labour cost (Rs. 125) and fuel cost (Rs. 93.74) respectively therefore total working capital was Rs. 1828.42 and interest on working capital was estimated to be (Rs. 0.65) @12 per cent.

4.2.2.2 Fixed cost

Fixed cost includes item such as depreciation on building, depreciation on equipment and interest on fixed capital. From Table 4.3 it seen that interest on fixed capital was (Rs 63.64) @ 13 per cent, followed by depreciation on equipment @10 per cent and depreciation on building @ 2 per cent which were amounted to Rs. 0.625 and Rs. 1.07 respectively for the production of 12.24 kg khoa.

From Table 4.3 per kg interest on fixed costs in khoa production was Rs. 5.20 @ 13 per cent, followed by depreciation on equipment @10 percent and depreciation on building @ 2 per-cent which were amounted to Rs. 0.05 and Rs. 0.09, which shares about 0.03 per-cent and 0.09 per- cent respectively.

4.2.3 Estimation of average profitability in khoa production

Average profitability in khoa production was calculated and presented in Table 4.4. It is observed that for average production of khoa was 12.24 kg was and its value received was Rs. 2448 with average price of Rs. 200 per kg of khoa.

Total cost required to produce 12.24 kg khoa was Rs. 1893.71 and per kg cost of khoa production was Rs. 154.72. Production cost consists of two cost variable cost and fixed cost, it was Rs. 1828.38 and Rs. 65.33 respectively for production of 12.24 kg khoa and per kg variable cost and fixed cost was Rs. 149.38 and Rs. 5.34 respectively. By deducting production cost from gross returns the net returns was amounted to 554.29, and per kg khoa production net

return was Rs 45.28. Khoa is the traditional milk product and which is produced by traditional method in Washi tahsil of Osmanabad district which required very less production cost due to easy availability of fuel and labour and adequate quantity of milk. Per kg net returns from khoa production was Rs. 45.28 and B:C ratio was 1.29.

Table 4.4 Per day average profitability in khoa production

Sr. No.	Particulars	Cost (Rs.)
1	Gross price of khoa (12.24kg)	2448
2	Variable cost	1828.38
3	Fixed cost	65.33
	Total cost (2+3)	1893.71
	Net returns	554.29
4	Per kg price of khoa	200
5	Per kg cost of production	154.72
	Per kg net return	45.28
	B:C Ratio	1.29

4.3 Marketing channels, marketing cost, price spread, and marketing efficiency in khoa marketing.

Khoa producers of the selected villages use buses, bike and other local private vehicles for transportation of khoa. There is big wholesaler and retailer shops in Washi market where farmer send khoa daily from village to these shops. In the peak period daily 5-10 quintals of the khoa was received which may even less to meet the demand in the festivals.

4.3.1 Khoa production, retention and marketed surplus through different channel

It was important to estimate the marketed surplus, to know the various channels, marketing cost and Market Margin. Quantity of khoa production, retention, marketed surplus and marketing of khoa through different marketing channels were calculated and are presented in Table 4.5 the results revealed that the per day average production of khoa was 12.24 Kg. It was clear from the result that quantity of khoa retention for home consumption was 0.110 Kg

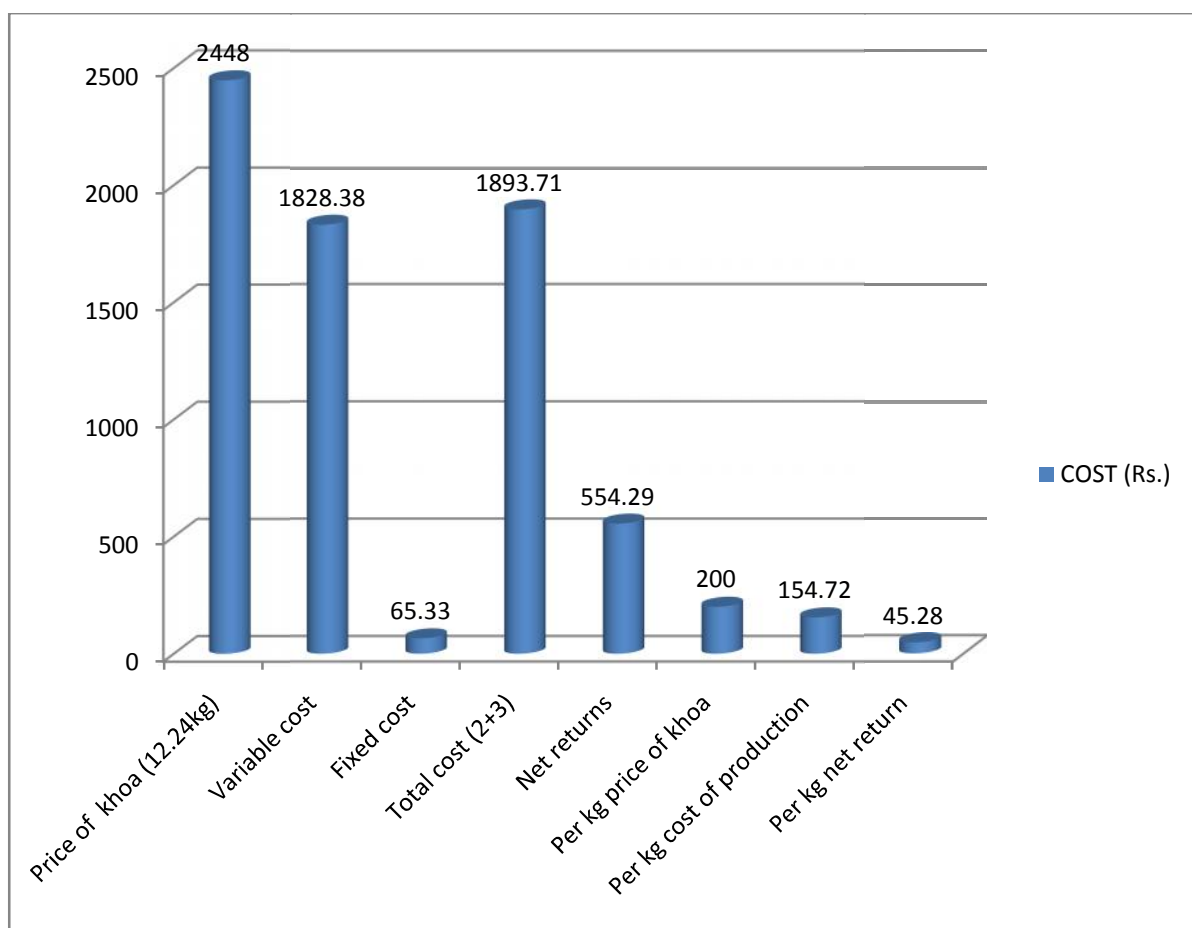


Fig.4.4 NET RETURNS IN KHOA PRODUCTION

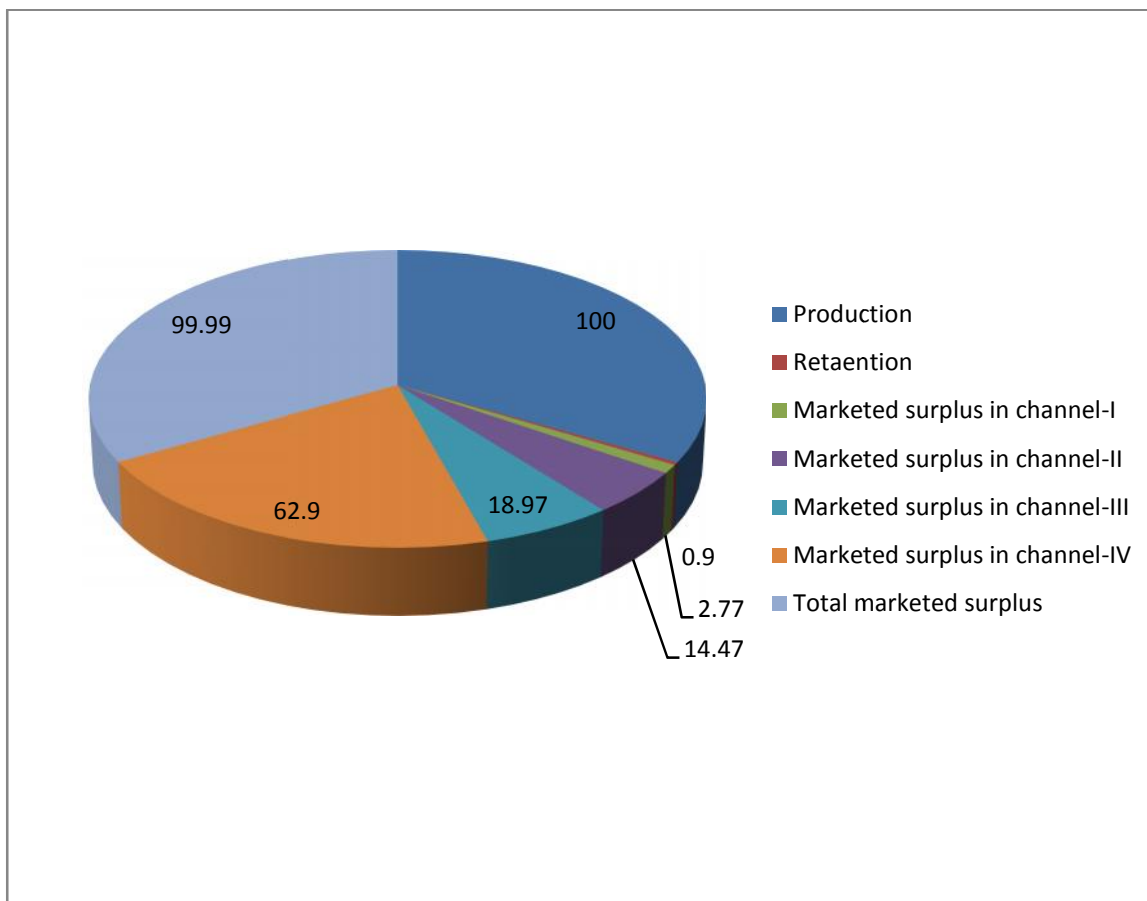
and share of khoa sold through channels-I, channels-II, channels-III and channels-IV were marketed as 0.34, 1.77, 2.32 and 7.71 kg respectively. It was observed from the results that the highest quantity of khoa production was marketed through channel-IV which was 62.99 per- cent of total marketed surplus. And total marketed surplus khoa was lowest through channel-I which was 12.13 kg.

Table 4.5. Per day Khoa production, retention and marketed surplus.

Sr. No.	Particulars	Quantity of khoa (kg)	Percentage
1	Production	12.24	100.00
I	Marketable surplus (home consumption)	0.11	0.90
i	Marketed surplus in channel-I (Producer-Consumer)	0.34	2.77
ii	Marketed surplus in channel-II (Producer-Wholesaler-Consumer)	1.77	14.47
iii	Marketed surplus in channel-III (Producer-Wholesaler-Retailer-Consumer)	2.32	18.95
iii	Marketed surplus in channel-IV (Producer-commission agent-Retailer-Consumer)	7.70	62.90
	Total marketed surplus	12.13	99.99

4.3.2 Marketing cost of khoa incurred by producer and market functionaries and various items used in market process

Per kg marketing cost of khoa incurred by producer with respect to various items in different marketing channels were calculated and presented in Table 4.6 and Table 4.7, respectively. The results revealed that in channel-I total marketing cost incurred was Rs. 4.40 which consist of cost incurred on packaging charges (Rs. 0.58), transportation charges (Rs. 3.67) and cooling charges (Rs. 0.15) respectively. In channel-II, total marketing cost was Rs 4.87 which consists of packaging, transporting and cooling charges i.e., Rs. 0.95,



**Fig.4.5 PERCENTAGE OF PER DAY MARKETABLE SURPLUS
AND MARKETED SURPLUS IN KHOA PRODUCTION**

Rs. 3.67 and Rs. 0.25 respectively. In channel-III, total marketing cost was Rs. 6.7 which consist of cost incurred on packaging (Rs. 0.79), transportation charges (Rs. 5.6) and cooling charges (Rs. 0.34) respectively. In channel-IV, total marketing cost incurred was Rs 6.83 which consist of packaging charges (Rs. 0.49), transporting charges (Rs. 4.26), cooling charges (Rs. 0.185) and commission (Rs. 1.9) respectively.

Marketing cost incurred was the highest in channel IV and it was lowest in channel-I due to less market functionaries are involved marketing process.

Table 4.6 Channel wise Items of marketing cost in marketing process

(Rs.)

Sr.No.	Particulars	Channel-I	Channel-II	Channel-III	Channel-IV
1	Packaging	5.86	0.95	0.80	0.81
2	Transportation	3.67	3.67	5.60	5.30
3	Cooling Charges	0.15	0.25	0.34	0.20
4	Commission	-	-	-	1.92
	Total cost	4.40	4.87	6.74	6.83

Table 4.7 Marketing cost of khoa incurred by producer and market functionaries

(Rs.)

Expenses incurred by functionarie						
Sr. No.	Channels	Producer	Wholesaler	Commission agent	Retailer	Total marketing cost
1	Channel-I	4.40	-	-	-	4.40
2	Channel-II	1.67	3.15	-	-	4.82
3	Channel-III	1.68	3.09	-	1.92	6.70
4	Channel-IV	3.32	-	3.18	1.73	8.23

4.3.3. Producer share in consumer rupee's, Market margin and price Spread in khoa marketing

Per kg marketing cost, Market Margin and price spread in khoa marketing with respect to different marketing channels were calculated and



Fig 4.6 MARKETING OF KHOA BY DIFFERENT CHANNEL

presented in Table 4.8. The results revealed that price paid by consumer was the highest i.e., Rs. 214.71 in channel-IV, followed by Rs. 205.68 in channel-III, it was followed by Rs. 203.02 in channel-II and in channel-I it was Rs. 200. The results revealed that producer share in consumer rupees was the highest in channel-I which is 97.80 per-cent because no market intermediaries are involved followed by 96.14 per-cent in channel-II, 94.87 per-cent in channel - III and lowest i.e., 90.03 per-cent in channel-IV due to involvement of market intermediaries.

Table 4.8 Per Kg Marketing cost, market margin and price-spread in khoa marketing (Rs.)

Sr.No.	Particular	Channel-I	Channel-II	Channel-III	Channel-IV
1	Net price received by producer	195.60	195.18	195.13	193.72
	(Producers share in Consumers rupee)	(97.80)	(96.14)	(94.87)	(92.50)
2	Cost incurred by producer	4.40	1.67	1.63	3.33
		(2.20)	(0.82)	(0.69)	(1.59)
3	Price received by producer	200	196.85	196.76	197.05
		(100)	(96.96)	(95.66)	(94.20)
4	Price paid by wholesaler	-	196.85	196.76	-
		-	(96.96)	(95.66)	-
5	Cost incurred by wholesaler	-	3.15	3.09	-
		-	(1.55)	(1.5)	-
6	Margin of wholesaler	-	3.02	2.90	-
		-	(1.49)	(1.40)	-
7	Cost incurred by Commission agent.	-	-	-	3.18
		-	-	-	(1.50)
8	Price paid by retailer	-	-	202.75	204.73
		-	-	-	(97.87)
9	Cost incurred by retailer	-	-	1.92	1.73
		-	-	(0.93)	(0.80)
10	Margin of retailer	-	-	1.02	4.45
		-	-	(0.49)	(2.12)
11	Price paid by consumer	200	203.02	205.69	209.18
		(100)	(100)	(100)	(100)
12	Marketing cost	4.40	4.87	6.73	6.84
		(2.2)	(2.4)	(3.27)	(3.18)
13	Market Margin	-	3.02	3.92	4.45
		-	(1.49)	(1.90)	(2.12)
14	Price spread	4.40	7.84	10.56	15.46
		(2.20)	(3.86)	(5.13)	(7.39)

Market margin is the distribution of consumers rupee among the various intermediaries involved in marketing of khoa. It was seen that the market margin was the highest as Rs. 4.45(2.12 per cent) in channel-IV, followed by Rs. 3.92 (1.90 per cent) in channel-III, Rs. 3.02 (1.49 per cent), in channel-II and in channel-I it was zero.

From table 4.8 it was observed that the price spread was highest in channel-IV i.e., Rs. 15.46 followed by Rs. 10.56 in channel-III, Rs.7.84 in channel-II and Rs.4.4 in channel -I which is lowest.

4.3.4. Marketing efficiency of khoa through different channels.

From the study producer's share, marketing cost, market margin and their percentage to the consumer price was evaluated. Marketing efficiency was evaluated for to identify the more efficient channel in khoa marketing. From Table 4.9 was observed that the marketing efficiency was highest in channel-I (44.45) when khoa producer sold his produce directly to consumer. When the khoa sold through intermediaries, the marketing efficiency was lowest (15.27) in channel-VI where as 24.92 in channel-II and 18.39 in channel III.

Table 4.9 Marketing efficiency of khoa

Sr.No.	Particulars	Channel-I (Rs.)	Channel-II (Rs.)	Channel-III (Rs.)	Channel-IV (Rs.)
1	Net price received by khoa producer	195.60	195.18	195.13	193.72
2	Market margin	-	3.02	3.92	4.45
3	Marketing cost	4.40	4.81	6.69	8.23
4	Marketing efficiency	44.45	24.92	18.39	15.27

4.4 Constraints faced by khoa producer

Khoa producers were facing the problems in the production and marketing of khoa. In order to know the problems, the opinion of the khoa producers was considered for production. The problems were arranged in the form of frequency and percentage and major problems are presented in table 4.10, that 98.33 per cent khoa producer were facing the problem of Lack of knowledge about new khoa production technology ranked I position, second problem faced by khoa producer was transportation problem in rainy season

which was expressed by 81.66 per cent ranked II. Space and hygienic problem was expressed 66.33 per cent khoa producer ranked III, market up and down stiff competition was expressed by 50 per cent khoa producers ranked IV, Less availability of skilled labour was expressed by 41.66 per cent khoa producer ranked V, storage and cooling problem ranked VI position with 40 per cent, high price of milk and raw material was ranked VII position with 38.33 percent khoa producers. Adequate quantity of milk was not available ranked VIII position with 33.33 per cent and lack of awareness about marketing was expressed by 23.33 per cent ranked IX position respectively.

Table 4.10 Constraints faced by khoa producers.

(N=60)				
Sr. No.	Constraints	Frequency	Per cent	Rank
1	Lack of knowledge about new khoa production technology	59	98.33	I
2	Transportation problem in rainy season	49	81.66	II
3	Space problem	38	63.33	III
4	Market up and down stiff competition	30	50	IV
5	Less availability of skilled labour	25	41.66	V
6	Storage and cooling house problem	24	40	VI
7	High price of milk and row material	23	38.33	VII
8	Adequate quantity of milk not available	20	33.33	VIII
9	Lack of awareness of market information	14	23.33	IX



Summary and Conclusions



CHAPTER-V

SUMMARY AND CONCLUSIONS

Livestock is an integral part of the agricultural production system in India and plays an important role in national economy as well as in socio-economic development of millions of rural households.

India has become single largest milk producer nation in world, with anticipated milk production of 155.49 million tonnes during 2015-16. India is among the world largest and fastest growing market for milk and milk products. Estimated per capita availability in 2015-16 was 337 grams /day an increase of 4.7 per cent over the previous year (NDDB). It has been estimated that about 50 to 55 per cent of milk produced in India is being converted into a variety of traditional dairy products of which is about 60,0000 tonnes of khoa is being produced. (Rajarajan *et al.*2006). Market for Indian milk products is estimated to be Rs. 250 billion. This fact underlines the significance of traditional dairy products in the national economy. In spite of such a great importance of traditional dairy products in our country these products are still produced manually in the small sector with variable quality depending on the skill of halwais.

The food and nutritive value of khoa is very high. Khoa has unique importance because it is liked by all classes of society. It forms an important base for preparation of milk sweets which are an integral part of Indian food heritage. Depending on end use Khoa has been categorized into three major groups i.e. Pindi (for Burfi, Peda), Dhap (Gulabjamun) and Danedar (Kalakand). Khoa has considerable economic and dairy importance to Indian population.

Data from the national sample survey revealed the rising trend in per capita expenditure on milk and milk product by the people, with the growth of population and rising per capita income, demand for khoa in India is at increasing level.

OBJECTIVES

1. To study the socio-economic Characteristics of Khoa producers
2. To estimate costs and returns in Khoa production
3. To identify marketing channels, marketing cost, price-spread and marketing efficiency in Khoa marketing
4. To know constraints faced by Khoa producers

5.2 METHODOLOGY

For present study, multistage random sampling was adopted. Selection of district, tahsils, village and respondents was 1st, 2nd, 3rd and 4th stratum. Osmanabad district of Marathwada region was selected purposively for the study, because of maximum number of khoa production units are found in the district. There are 8 tahsils in Osmanabad district. Among these tahsils Washi tahsil was selected having maximum number of Khoa producing units. From selected tahasil, six villages producing maximum khoa were selected purposively. From selected villages, 10 khoa respondents were selected randomly.

Thus for present study, the total sample size constituted of 60 khoa producers.

The lists of the khoa producers were obtained by personal visit to the respective villages. The required information about production and marketing of khoa was collected from the khoa producers with the help of specially designed pretested schedules. The data for present study was pertains to the year 2016-17. The data was analysed by using simple mathematical and statistical tools like averages, percentages, ratios, frequency distribution etc. Cost of Khoa production was grouped in two categories Viz. fixed and variable costs. Fixed cost includes all the costs of fixed assets utilised in khoa production and variable costs include costs incurred on inputs, raw milk, fuel, labour charges etc.

Marketing cost i.e., cost borne by the producer from the time at which the produce leaves the farm till the sale of the produce and cost incurred by middlemen in the process of buying and selling was considered. Producer's share in consumer's rupee and marketing efficiency was calculated by Acharya's and Agrawal formula.

5.3 Results and discussion

The results revealed that most of khoa producer 41.67 per cent are older i.e., in the age group of above 50 year. Most of khoa producers 41.67 per cent were educated up-to secondary level. Average land holding of khoa producer was 3.37 ha out of which cultivated, grazing and fallow land was 83.03 percent, 11.27 per-cent and 5.63 per cent respectively. Average size of livestock was 4.57 out of which milch cow and milch buffalo was 36.76 per cent and 35 per-cent respectively

The quantity of physical inputs used in 12.24 kg khoa production was milk 45.89 litre, fuel 48.95 kg and labour 4.17 hour respectively. Expenditure incurred on physical inputs used in 12.24 kg khoa production consist of milk cost Rs. 1606.21, fuel cost Rs. 93.74, labour charges Rs. 125, electricity charges, Rs 2.83, interest on working capital Rs. 0.60 and interest on fixed capital Rs. 63.34, thus average cost of production was Rs. 1893.71.

The quantity of physical inputs used in 1 kg khoa production was milk 3.75 litre, fuel 4 kg and labour 0.34 hour respectively. Expenditure incurred on physical inputs used in 1 kg khoa production consist of milk cost Rs. 131.26, fuel cost Rs. 7.66, labour charges Rs. 10.21, electricity charges Rs 0.23 and interest on working capital Rs. 0.05.

Per kg cost and return of khoa production was calculated by estimating production cost. For cost of one kg khoa production was amounted Rs. 153.43 and net returns from 1 kg khoa was Rs. 45.28 per kg. B : C ratio was 1.29.

Marketing of khoa is important due to perishable nature. Producer sell their khoa to Osmanabad, Pune, Mumbai, Aurangabad, some districts of Karnataka and Andra pradesh market. Marketed surplus was 0.11 kg and 12.13 kg khoa was marketed through different channels. Marketing cost of khoa was highest in channel-IV (Rs. 8.23) and lowest in channel-I (Rs. 4.40). Marketing cost in channel-II and channel-III was Rs. 4.81 and Rs. 6.69 respectively. Market Margin was the highest as Rs. 4.45 (2.12 per cent) in channel-IV, followed by Rs. 3.92 (1.90 per cent) in channel-III, Rs. 3.02 (1.49 per cent) in channel-II and in channel-I it was zero. Price spread was highest in channel-IV i.e., Rs. 15.46 followed by Rs. 10.56 in channel-III, Rs.7.84 in channel-II and Rs.4.4 in channel-I which was lowest. Marketing efficiency helps to identifying the most efficient channel in khoa marketing. Channel-I was most efficient among four channels and Channel-IV was less efficient than other channels.

Major constraints faced by the khoa producer were lack of knowledge about new khoa production technology, was major constraint, then we observed different other constraint was transportation problem in rainy season, space problem, storage and cooling house problem, high price of milk and raw material, market up and down stiff competition, lack of awareness of marketing, and less availability of skilled labour.

5.4 Conclusions

From above result we concluded that, most of the khoa producers belonged to old age group i.e., more than 50 years, having educated up to secondary level, most of producers family has more than four members in their family and cultivated land holding was 3.73 total and grazing lands was 0.38 ha, engaged in farming plus khoa production. Cent per cent of the respondents were knowing that 1 kg yield of khoa is obtaining from standardized 4 litre of cow and 3.5 litre of buffalo milk which was averagely about 3.8 litres.

The 60 sample producers of six villages produced average 12.24 kg khoa in a day. Overall average cost of production was Rs. 1893.71 for

12.24 kg in selected samples. Milk cost was Rs. 1606.21 so that the milk cost contributed major cost in the khoa production. Per kg khoa production cost was Rs. 154.72, and per kg price of khoa was Rs. 200, per kg net return was Rs. 45.28 and B:C ratio was 1.29. It was evaluated that the khoa production was more profitable. In regard to khoa production, it was concluded that producer share in consumer rupees was low in channel-IV (producer–commission agent-retailer-consumer) and highest in channel-I (producer-consumer). Price spread was observed more in channel-IV and low in channel-I. Channel-I was most efficient among four channels and Channel-IV was less efficient than other channels.

The major problems faced by khoa producer were lack of knowledge about new production technology.

Hence hypothesis 1st i.e. per kg net profit from khoa production is more than raw milk has been proved also hypothesis 2nd i.e., Producer share in consumer rupees in marketing of khoa is less has been proved.

5.5 Policy Implications

1. Khoa production provides continuous flow of income to producers and generates employment opportunities hence the activity can be promoted as subsidiary occupation in potential areas.



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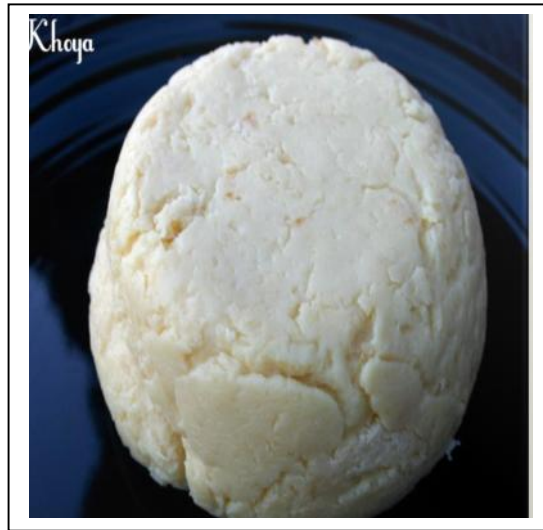
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Thesis Abstract



ABSTRACT

Name of student	:	Kawade Monika Jaysing
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Discipline	:	Agricultural Economics
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Minor field	:	Extension education
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Title of thesis	:	“Economics of Production and Marketing of Khoa in Osmanabad district of Marathwada Region”

India has become single largest milk producer nation in world, with anticipated milk production of 155.49 million tonnes during 2015-16. India is among the world largest and fastest growing market for milk and milk products. Estimated per capita availability in 2015-16 was 337 grams /day an increase of 4.7 per-cent over the previous year (NDDB). It has been estimated that about 50 to 55 per cent of milk produced in India is being converted into a variety of traditional dairy products of which is about 60,0000 tonnes of khoa is being produced. (Rajarajan *et al.*2006). Market for Indian milk products is estimated to be of the order of Rs. 250 billion. This fact underlines the significance of traditional dairy products in the national economy. Inspite of such a great importance of traditional dairy products in our country these products are still produced manually in the small sector with variable quality depending on the skill of Halwais.

The food and nutritive value of khoa is very high. It forms an important base for preparation of milk sweets which are an integral part of Indian food heritage. Depending on end use Khoa has been categorized into three major groups i.e., Pindi (for Burfi, Peda), Dhap (Gulabjamun) and Danedar (Kalakand). Khoa has considerable economic and dairy importance to Indian population.

Data from the national sample survey revealed the rising trend in per capita expenditure on milk and milk product by the people, with the growth of population and rising per capita income, demand for khoa in India is at increasing level.

For present study, multistage random sampling was adopted. Selection of district, tahasils, village and respondents was 1st, 2nd, 3rd and 4th stratum. Osmanabad district of Marathwada region was selected purposively for the study, because of maximum number of khoa production units are found in the district. There are 8 tahsils in Osmanabad district. Washi tahsil selected for study, because khoa production was carried out by traditional method. From selected tahasils, six khoa producing villages maximum were selected purposively. From selected 10 village 6 khoa respondents was selected randomly.

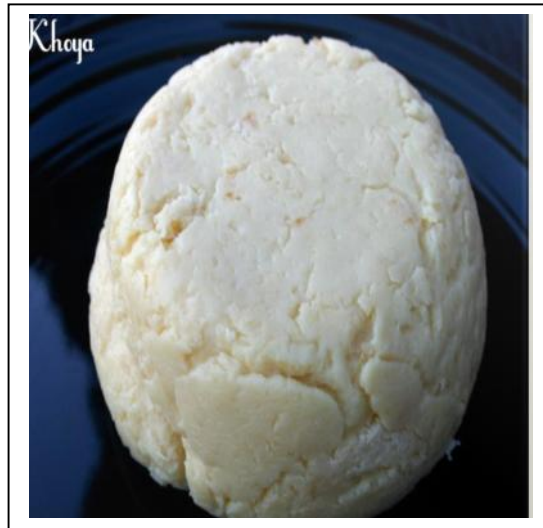
Thus for present study, the total sample size will constitute of 60 khoa producers. The lists of the khoa producers were obtained by personal visit to the respective villages. The required information about production and marketing of khoa was collected from the khoa producers with the help of specially designed pretested schedule. The data for present study will pertain to the year 2016-17.

Most of khoa producers 41.67 per-cent belongs to the age group above 50 years. 41.67 per-cent producers were educated up to secondary level. 68.33 per-cent producers has more than 4 members in their family and average land holding was 3.37 ha. All producers were engaged in farming and khoa production.

For one kg khoa production 3.75 lit. milk was required which cost to be Rs. 131.26, fuel required was 4 kg which cost was Rs. 4.99, labour required for 0.34 hr whose charges was Rs. 6.65, electricity charges was Rs. 0.15, depreciation on building and equipments was Rs. 0.09 and Rs. 0.625 resp., and interest on fixed capital was Rs. 5.20 thus total cost of production of 1 kg khoa was Rs. 154.72. Net return obtained from 1 kg khoa was Rs. 45.28, so it was concluded that the khoa production was more profitable.

In regard to khoa production, net price received by khoa producer was highest in channel-I (producer-consumer) and lowest in channel-IV (producer –commission agent-retailer-consumer). It was concluded that overall marketing cost for one kg of khoa was Rs. 4.4 in channel-I. The producers share in consumer rupee was highest i.e., 97.80 per cent in channel-I. Market margin was highest in channel-IV and lowest in channel-I. Price spread was observed more in channel-IV and low in channel-I. Marketing efficiency was highest-I and lowest in channel-IV.

The major problem faced by khoa producer was lack of knowledge about new khoa production technology.



Appendix



APPENDIX -I

“ECONOMICS OF PRODUCTION AND MARKETING OF KHOA IN OSMANABAD DISTRICT OF MARATHWADA REGION”

SCHEDULE

A. Socio-economic status of khoa producers :-

1. Name: _____ Mob. No. _____
2. Village: _____ Taluka :Washi_____ : District : Osmanabad
3. Age:_____ Yrs.
4. Education: Illiterate/Primary /High school/ Higher secondary /college level
5. Family Type: Joint/nuclear Family size (no): _____
6. Occupation : Agriculture / Business / Service
7. **Land holding** : Total land _____ ha.
 - a) Cultivated : _____ha.
 - b) Irrigated : _____ha.
 - d) Fallow : _____ha
 - e) Grazing land : _____ha
8. No of animals:
9. fixed assets:
 - a) Livestock:
 - b) Building:
 - c) Equipment:

B. Information about animals:

Animals name	NO. of Milch animals	NO. of Dry animals	Total animals
Buffalo			
Cow			
Sheep			
Goat			
Bullock			

C. Information about milk production:

	Daily	Weekly	Monthly	Annul
Total milk production (lit.)				
Home consumption (lit)				
Fresh milk sold (lit.)				
Milk converted to khoa (lit.)				

D. Information about khoa production

	Daily	Weekly	Monthly	Annul
Total khoa production (kg)				

E. Marketing and marketing cost

- 10. Market place:
- 11. Transport facility:
- 12. Transport charges (Rs/km):
- 13. Cooling charges (Rs./Kg):
- 14. Storage facility

F. Marketing channels in khoa marketing

- I Producer → Consumer
- II Producer → wholesaler → consumer
- III Producer → retailer → consumer
- IV Producer → commission agent → wholesaler → consumer

G. Type of marketing

- a) Local:
- b) Weekly market:
- c) Daily market:
- d) City market:
- e) Long distance market:
- 15. Price per kg obtained:
- 16. Total marketing cost:
- 17. Total commission to commission agent:
- 18. Net amount received by producers
- 19. Price spread in market

H. Constraints faced by khoa producer:

APPENDIX – II

Sr. no.	Khoa Producer Name	Village	Mobile No.
1.	Vijay Nilkantha Gaikawad	Saramkundi	8007534497
2.	Bhausahab Prabhu Gikawad	Saramkundi	9922279303
3.	Shivaji Niwarati Nalwade	Saramkundi	9604795192
4.	Sambhaji abasaheb Gaikawad	Saramkundi	9922687282
5.	Sadashiv Namdev Gaikawad	Saramkundi	9552495399
6.	Ajay Dhananjay Gaikawad	Saramkundi	9922533215
7.	Pintu Bansi Gaikawad	Saramkundi	9657939777
8.	Prashant Dadasaheb Gikawad	Saramkundi	9552019527
9.	Vishal Balasaheb patil	Saramkundi	
10.	Ashok Haridas Gaikawad	Saramkundi	
11.	Machindra Vishavanath Hake	Yaswandi	8605253279
12.	Sitaram Janrao Vahamode	Yaswandi	7875132110
13.	Ramling Kisan Vahamode	Yaswandi	9588425041
14.	Ashruba Niwarati Hake	Yaswandi	7762657906
15.	Ananta Vittal Hake	Yaswandi	9049362976
16.	Shrimant Dhondiba Khote	Yaswandi	9875443537
17.	Shrimant Kisan Hake	Yaswandi	9922690613
18.	Shivagi Dhondiba Ghote	Yaswandi	8698142306
19.	Mhadev Vanathaij Hake	Yaswandi	8390956237
20.	Baban Kisan Hake	Yaswandi	9823253943
21.	Ramraje Shivaraj Kagade	Golegao	9921420430
22.	Dhananjay Popat Kagade	Golegao	8888609393
23.	Chintamani Uttam Kagade	Golegao	988056590
24.	Govind Shivagi Kagade	Golegao	9527343225
25.	Suresh Bapu Kambale	Golegao	8698979566
26.	Amol Ashok Kagade	Golegao	8378000719
27.	Bhujang Sivaram Kagade	Golegao	8308380857
28.	Arun Shivaram Kagade	Golegao	9921543681
29.	Prakash Shahagi Kagade	Golegao	9421667500
30.	Prakash Unakeshwar Kagade	Golegao	
31.	Rambhau Lalasaheb Kawade	Kawadewadi	9284151591
32.	Gorak Sitaram Barde	Kawadewadi	9921668995
33.	Nagesh Haridas Gholap	Kawadewadi	9689809515

34.	Hridas Dagadu Gholap	Kawadewadi	9850462767
35.	Navanath Rambhau Chandankar	Kawadewadi	9822804634
36.	Mohan Bhagawan Shelke	Kawadewadi	8308391524
37.	Vilas Hridas Gholap	Kawadewadi	9922347698
38.	Mahesh Pandurang Gholap	Kawadewadi	8308301271
39.	Atul Ramdas Sherakar	Kawadewadi	-
40.	Ashok Ranganath Vidhate	Kawadewadi	-
41.	Sudhakar Ramling Chede	Sarola(w)	955247999
42.	Vaman Aaparao Kawade	Sarola(w)	-
43.	Umesh Arun Rite	Sarola(w)	9011274326
44.	Sachin Parmeshwar Chede	Sarola(w)	9011268949
45.	Manoj Aangad Chede	Sarola(w)	9763995086
46.	Rahul Tukaram Chede	Sarola(w)	9075562066
47.	Ashok Sampatara Chede	Sarola(w)	9545610601
48.	Shubhash Bhaudas Rite	Sarola(w)	9075479320
49.	Suresh Kalaynrao Kawade	Sarola(w)	9767311934
50.	Ajit Bapurao Chede	Sarola(w)	9545651476
51.	Sanjay Sarjerao Sukale	Sonégao	7057574246
52.	Sudam Vishwanadth Sukale	Sonégao	8806823641
53.	Nitin Nanasaheb Sukale	Sonégao	9404965096
54.	Hnumant Parshuram Sukale	Sonégao	9527338799
55.	Bharat Raosaheb Sukale	Sonégao	9057942857
56.	Arun Narayan Sukale	Sonégao	9146955941
57.	Shrimant Uttam Sukale	Sonégao	9049455842
58.	AdashivUtareshwarVaghamare	Sonégao	-
59.	Chandrasan Narayan Sukale	Sonégao	8484845241
60.	Mohan Nimbaraj Sukale	Sonégao	9881839814