ECONOMIC ANALYSIS OF PHALSA PRODUCTION AND MARKETING IN CHIRAIGAON BLOCK OF VARANASI DISTRICT (U.P.)

काशी हिन्दू विश्वविद्यालय

BANARAS HINDU UNIVERSITY

PROJECT REPORT

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER

OF

AGRI-BUSINESS MANAGEMENT

Supervisor:
Prof. H.P. Singh

Submitted By:
Sadanand Maurya

DEPARTMENT OF AGRICULTURAL ECONOMICS
INSTITUTE OF AGRICULTURAL SCIENCES
BANARAS HINDU UNIVERSITY
VARANASI-221005

I.D.No. 16412ABM020 **2018** **Enrolment No. 388904**

Dr. H.P. Singh
Professor

Department Of Agricultural Economics
Institute Of Agricultural Sciences
Banaras Hindu University
Varanasi - 221005, U.P.

Ref. No …… **Date: …….**

CERTIFICATE

To,
The Registrar
Banaras Hindu University,
Varanasi-221005, U.P. (India).

Through:

The Head,

Department of Agricultural Economics,
Dear Sir,

I have great pleasure in forwarding the project report entitled **"ECONOMIC ANALYSIS OF PHALSA PRODUCTION AND MARKETING IN CHIRAIGAON BLOCK OF VARANASI DISTRICT (U.P.)"** submitted by **Mr. Sadanand Maurya, I.D. No. 16412ABM020,** in partial fulfillment of the requirements for the degree of **Master of Agribusiness Management,** of the Banaras Hindu University and placing on record that he has completed the requisite requirements as contained in the statutes of the university.

I certify that the entire scheme of investigation reported herein was planned and carried out solely by the candidate under my guidance and supervision. The data presented in the thesis, to the best of my knowledge and belief, are genuine and have not been utilized for the award of other degree or distinction.

Thanking you,

Forwarded By: **Yours faithfully**

Coordinator Head **Prof. H.P. Singh**
Chairman

ECONONICES ANALYSIS OF PHALSA PRODUCTION AND MARKETING IN CHIRAIGAON BLOCK OF VARANASI DISTRICT(U.P.)

By

SADANAND MAURYA

I.D. No. 16412ABM020 **2016-18** **Enrolment No. 388904**

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PROJECT REPORT APPROVED BY ADVISORY COMMITTEE

Chairman : **Prof. H.P. Singh**
Professor
Department of Agricultural Economics

Member : **Dr. O.P.Singh**
Assistant Professor
Department of Agricultural Economics

Member : **Prof. B.Jirli**
Professor
Department of Extension Education

EXTERNAL EXAMINER:

ACKNOWLEDGEMENT

At the outset, being the student of this great institution. I bow my head with in great reverence to the lotus of ***Mahamana Pandit Madan Mohan Malaviya Ji,*** *the founder of the Banaras Hindu University whose everlasting desire was to serve the mankind.*

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Last but not least, I bow my head before the feet of almighty ***"Baba Vishwanath" Bajrang Bali*** *and* ***Sarashwati Maa*** *seeking his blessings to accomplish the daunting task ahead inmy life.*

Date: ...../...../.....

Place Varanasi ***(Sadanand Maurya)***

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INTRODUCTION

Agriculture plays a vital role in India's economy. 54.6% of the population is engaged in agriculture and allied activities (census 2011) and it contributes 17% to the country's Gross Value Added (current price 2015-16, 2011-12 series). Given the importance of agriculture sector, Government of India took several steps for its sustainable development. As per the land use statistics 2013-14, the total geographical area of the country is328.7 million hectares, of which 141.4 million hectares is the reported net sown area and 200.9 million hectares is the gross cropped area with a cropping intensity of 142 %. The net sown area works out to be 43% of the total geographical area. The net sown area works out to be 43% of the total geographical area.

The wide and varied nature of horticulture sector covering fruits, vegetables, root and tuber crops, flowers, aromatic and medicinal crops, spices and plantation crops facilitates better returns per unit of area besides opportunities for diversification in agriculture.

Horticulture crops cover an area of 23.8 million ha (m. ha) at present by registering increase of about 17.8% as with a production of about 283.4 million MT, horticulture production has witnessed an increase of about 34.3% during the period 2007-08 to 2015-16. The significant feature is that there has been improvement of productivity of horticulture crops, which increased by about 13.8% during this period.

Area, production and productivity of horticulture crops during past 9 years are given in table No. 1.1.

Table No. 1.1 Area, Production and Productivity of Horticulture Crops

(Area: million ha, Production: million metric ton, Productivity: metric ton/ha)

Year	Area	Production	Productivity
2007-08	**20.2**	**211.0**	**10.4**
2008-09	**20.5**	**214.4**	**10.5**
2009-10	**20.8**	**223.2**	**10.7**
2010-11	**21.8**	**240.4**	**11.0**
2011-12	**23.2**	**257.3**	**11.1**
2012-13	**23.7**	**268.8**	**11.3**
2013-14	**24.2**	**277.4**	**11.5**
2014-15	**23.4**	**280.99**	**12.01**
2015-16	**23.7**	**283.36**	**11.91**

The area under fruit crops during 2015-16 was 6.4million ha. witha total production of 91 million metric ton**.**During the period, production of fruits increased by about 39% while the area increased by about 7%.

India has retained its status as the second largest producer of fruits in the world. The country is first in the production of fruits like mango, banana, sapota, pomegranate and aonla.

Phalsa (Grewia asiatica) is a subtropical plant indigenous to india, and is grown in Utter Predesh, Madhya Pradesh, Punjab, Haryana, Rajsthan and Maharastra. It belongs to the family Tiliaceae. Phalsa is capable of growing under neglected and water scarcity conditions where only a few other crops would survive. It prefer dry and hot environment during flowering.

Phalsa is an important minor fruit crop of india. It is a hardy and small bushy in nature and prefered as an ideal crop for growing in arid and hot region. It can be grown in hilly area because it is a drought resistant crop.

Phalsa can be grown a wide variety of soils such as fine sand , clay or even lime stone . But the higher yield and quality fruits can be obtained when grown in well drained loamy soil. Phalsa is grown mostly as awaste land crop. Therefore , there is a great scope of increasing the acreage under this fruit crop.

The phalsa plant can be grown in wide climatic conditions except high attitude. The plant grown satisfactorily up to an elevation of 1000 m.The plant does well in the area of where there is distinct summer and winter. The Plants are deciduous and normally shed leaves on the onset of winter season and go on dormancy . It can grow at temperature ranging from 3 °Cto 45 °C. Plant can tolerarte light frost. But requires protection from the very low tempreture. Adequate sunlight and warm or hot temperature are required for fruit riping, development of appropriate fruit color , and good eating quality.

The phalsa stem is a hard woody,circular and non-hairy. The bark of phalsa is rough grey coloured. Phalsa is a shurb or a small tree reaching to four meters of sometimes more in height (sastri, 1956).

The young branches are covered with dense hairs. Leaves are 20 cm in leangth and 15 cm in wide. The fruits are very small ,purpal to crimson red in colour when ripe. Fruits are 1.0 to 2.0 cm in diameter, 1.0 to 1.5 cm in length with average fruit weight of 1.0 to 2.0 gm.

Flowers emerge during february march . Fruits are ripe 45 – 55 days after flowering. All fruits on a cluster do not ripe at a time. The fruits are sweet acidic in test with mild pleasent flavour. The fruits usually contain one seed , which are hemipherical and 5 to 7 mm in size.

The phalsa fruits are consumed as fresh, desserts or processed into refreshing fruit and soft drink viz; Syrup, juice and Squash etc and enjoyed during hot summer months. It has a cooling effect . The phalsa fruits are highly perishable in nature due to its perishability, it can not be exported but its processed product are very appreciavle.

Not only the fruits of phalsa is very testy and beneficial but also the other part of the tree have their own advantages. The bark is also is used to make ropes and as a substitute for soap.The leaves are also used as cattle fodder. The branches are used to make basket for carrying vegitables and fruits, as a fuel.

Nutrient composition

The phalsa fruits contain highcarbohydrate (6.8 to 25.8 %), sugar and acid(0.42 to 2.5 %) and very little protein and fat. The citric acid in the major acid in the fruit with traces amount of malic acid. The fruits are rich in vitamins and mineral.It contains high amount of vitamin A and high antioxidant value. The phalsa fruits are rich in flavonoids, carotenoids and anthocyanins. Flavonoids have known antioxidant activities while anthocyanins help to reduce the risk of heart disease by inhibiting cholesterol formation. The phalsa fruits are rich in potassium, which plays important role in energy metabolism and normalizing blood pressure. The nutritional value of phalsa is given in Table 2.

Table No. 1.2 Nutritional value of phalsa fruits

Nutrients	**Nutrient value per 100g edible portion**
Moisture (%)	80.8
Carbohydrate (%)	21.1
Protein (%)	1.5
Fat (%)	0.9
Fiber (%)	1.2
Calcium (mg)	129
Phosphorus (mg)	39
Potassium (mg)	375
Iron (mg)	3.1
Vitamin A (carotene) ug	419
Vitamin B3 (mg)	0.3
Vitamin C (mg)	22

Medicinal value of phalsa

Phalsa has been used in various medicines since Vedic period. The ripe fruits have a cooling effect on body. They have tonic and aphrodisiac properties. The fruits cures thirst and burning sensation, remove and cure inflammations.These are said to be good for heart and blood disorders, fevers and diarrhea. The fruit is also good for the troubles of throat. It also helps to remove the dead foetus. The unripe fruits and bark of phalsa plant cures biliousness and *Vata* and *Kappa*. It also cures urinary troubles and the burning sensation of reproductive system. An infusion of the bark is used as a demulcent. The root is used in strangury, gleet and gonorrhea. The root bark is used for the root bark is used for rheumatism. The leaves are used as an application to pustular eruptions. Some physicians also prescribe buds of phalsa for cure of diseases. In the experiment with small mammals, it has found that phalsa provides protective role against gamma irradiation (Tripathi, 2009).

Other uses

The fresh leaves are used as animal fodder. The bark is used as a soap substitute in some areas. The mucilaginous extract of the bark is used in clarifying sugar and jiggery. Fiber extracted from the bark is used for rope making. The wood is yellowish white, fine-grained, strong, and flexible. The pruned branches are used for basket making, support sticks and fuel wood purpose. The flower contains grewinol, a long chain keto alcohol (Laxmi and Chauhan, 1976). The seed of phalsa contains 5 percent oil, which is bright yellow in color and contains 65 % linoleic acid, 13 .5 % oleic acid and 11% stearic acid (Morton, 1987).

Objectives:

1. To study the cost of cultivationand return of phalsa production.
2. Toidentify the different marketing channelss of phalsa.
3. Toestimate the marketing cost of phalsa.
4. To identify the constraints in phalsa marketing.

REVIEW OF LITERATURE

Singh and Kahlon (1968) reported that the marketing of grapes in Punjab observed that commission agents and retailers were important channels for per cent of produce was marketed through commission agents and retailers, respectively selling grapes. About 41 and 40 Further, analysis showed that grading and packing formed 72.6 per cent of total marketing costs in the primary markets, transportation cost accounted for 10.96 percent and 34 percent in these markets, respectively.

George and Singla (1969) studied marketing of sweet oranges in Punjab and found that 77.39 per cent of farmers disposed their produce to the pre-harvest contractors, 20.38 per cent to the distant terminal markets and rest to the local whole sellers and retailers and directly to consumer.

Kochhar and Thakur (1971) reported that most common mode of marketing of apples in Himachal Pradesh was through commission agents which accounted for about 85.63 per cent of the marketable surplus. The next important method of sale was through pre-harvest contractors which accounted for only 14.67 per cent of total marketable surplus.

Dhar*et al.* (1976) stated that pre-harvest contract system was most common method of sale of apples among small and medium orchardists and sales through commission agent was more popular among large orchards. The marketing costs when sold through commission agent at the markets of Jammu, Amritsar and Delhi were Rs.11.88, Rs.14.58 and Rs.17.37, respectively. The major items of marketing costs were packing, transportation and commission charges. Further, analysis showed that commission agents accounted for more than 41 per cent of total marketing margins followed by transportation and handling charges.

Krishnamurthy *et al.* (1978) studied the economics of production and marketing of coorg mandarin oranges in Karnataka and found that the pre-harvest contractors made a net profit of R. 25.06 per thousand fruits and incurred expenses of Rs.24.24 commission charges which were Rs.10.71 per thousand fruits formed 44.18 per cent of the total marketing cost. Harvesting and transportation costs were the other important items of marketing cost. The grower received profit of Rs.57.89 per thousand fruits.

Menon (1979) studied the feasibility of investment in grape gardens in Bangalore north taluk. The estimated middle life of the vine yards were 30 and 25 years for Bangalore blue and Anab-e-Shahi respectively. The study in which the net present worth was found to be Rs 38,22,828 per hectare, the benefit cost ratio was 1.42 and internal rate of return was 40 per cent in the case of Bangalore blue variety. For Anab-e-Shahi the respective values were Rs 92, 46,096 per hectare 1.76 and 49.06 per cent.

Patilet.al (1983) studied the economic viability of investments in Alphonso mango plantations in Ratnagiri district of Maharashtra considering 72 orchards from six villages. The study revealed that the capital investment in Alphanso mango plantations was an economically viable proposition. The B.C ratio was 1.38, NVP was (21.78 Rs. /ha) the internal rate of return was higher than interest rate of Bank (18%) and payback period was 10 years.

Rajagopal (1987) in his study on marketing of apple, guava and mango fruits reported that the producers share in the final price was highest in apple crop followed by mango and guava. The cost of marketing was higher in guava followed by mango and apple. It revealed that apple cultivation was economically viable even to small growers. He recommended that direct sales and sales through cooperatives should bepromoted to provide more share to the producers in the final price of fruit crop.

Kulkarni (1989) in his study on economics of production and marketing of grapes in Bijapur district, Karnataka identified two marketing channels, they were, Producer – commission Agents com wholesaler-Retailers consumers and Producer- Pre harvest Contractors- Retailers-consumers. The study revealed that selling through commission agent in the market was profitable compared to sale to preharvest contractors.

Raikar (1990) in his findings of the study indicated that per ha. NPV was found to be Rs. 28,440.58 in the case of small orchard, Rs. 16,780.84 in the large orchard and Rs. 21,034.59 in average orchard. The B: C ratio at 12 per cent discount rate was 2.87 in small orchard 12.25 in large orchard and 2.49 in an average orchard. The payback period was 8.90 years, 9.38 years and

9.18 years in small, large and over all orchards, respectively. The internal rate of return was found to be 20.22, 17.88 and 18.88 per cent in small, large and average orchard respectively.

Raikar (1990) in his study on investment in production and marketing of cashew nut in Karnataka, identified six channels of trade namely,

1] Grower _ Itinerant Trader _ Processor

2] Grower _ Pre – Harvest Contractor _ Itinerant Traders _ Processor

3] Grower _ Village merchant _ Processor

4] Grower _ Traders _ Processor

5] Grower _ Processor

6] Grower _ Commission agent _ Trader _ Processor.

The results further revealed that producers share in consumers price was more (52%) in channel-3. this share was reduced to 37.50 percent when producer sold his standing crop to pre-harvest contractor was very low.

Koujalagi and Kunnal (1991) made an attempt to identify the marketing channels and estimated the marketing costs of pomegranate in Bijapur district. They have identified two channels Channel-1: producer-pre-harvest contractor-commission agent cum wholesalerretailer- consumer and Channel-2: producer-commission agent cum wholesaler-retailer-consumer. The total marketing cost incurred by pomegranate producer seller was Rs.71.94 per quintal. The four items namely commission, transportation, packing material and harvesting together formed 95.88 per cent of total marketing cost. The other items namely labour charges and miscellaneous expenditure constituted the remaining part of marketing cost.

Azad and Sikka (1991) in their study on production and marketing of temperate fruits applied project evaluation measures to study the economic viability of fruits such as apples, peaches, plums and apricots. The net present value was Rs 26,257 for apples. Rs. 89,222 for peaches Rs. 1, 17,837 for plums and Rs 1, 60,541 for apricots. The internal rate of return was22.33 and 47 per cent respectively. The benefit cost ratios were 1.36, 3.87, 4.62 and 5.10 respectively. Hugar*et al.* (1991) examined the economic potentiality and viability of Guava cultivation under scientific management. The study revealed that the net present worth was Rs 7, 38,042 per hectare. The

benefit cost ratio, internal rate of return and payback period were found to be 3.88, 57.82 per cent and six years respectively.

Koujalagi and Kunnal (1992) evaluated financial feasibility of investment in pomegranate orchard in Bijapur district of Karnataka. The study shows per acre net present value for the entire life period of the project was found to be Rs. 8,283.81. The discounted benefit cost ratio (at 12 per cent discount rate) was 1.53. The payback period was6.56 years and internal rate of return was 15.55 per cent.

Hiremath (1993) studied the economics of production and marketing of lime in Bijapur district, Karnataka, identified the problems relating to production and marketing of lime. The absence of processing facility, absence of cold storage facility and fluctuations in prices werethe major problems expressed by 100 per cent of farmers and other problems were absence of cooperative marketing of lime, non-availability of packing material at reasonable price and difficulty in transportation.

Satihal (1993) reported that only one marketing channel was observed in Bijapur district for ber crop. The per-quintal marketing cost of producer seller was the highest in Bangalore market (Rs.119.73) followed by Hubli market (Rs.114.35) and Bijapur market (99.88). The net returns realized per quintal was the highest in Hubli market Rs.(379.25) followed by Bijapur market (Rs.356.61) and Bangalore market (Rs.247) because of the price received by producer in Bangalore market was high as compared to other markets.

Gummangolmath (1994) studied the economics of production and marketing of mango in Dharwad district, Karnataka and identified the different channels of transfer of mangoes from the farmer to theconsumer.

Channel-1 Producer-commission agent-Retailer-consumer

Channel-2 Produces-Pre-harvest contractor (wholesale)-Retailer- Consumer

Channel-3 Producer-Processing Units Agents-Retailer-Consumer

Channel-4 Producer-Pre harvests Contractor-Commission agent- Retailer-Consumer

Singh (1996) studied price spread of citrus fruit in mid hill of Jammu and Kashmir. An overall view of results revealed that producers share in consumers rupee was 35.71 per cent in channel-1 (producerpre- harvest contractor-retailer-consumer) and 81.25 per cent in channel- 2 (producer-retailer consumer).

Chitra*et al.* (1997) in the study on economics of ber production in and around Hyderabad city of Andra Pradesh found that, the payback period in ber cultivation was 4.42years and the benefit cost ratio was 5.25 indicating the profitability of ber cultivation. The net present value worked out was Rs.12, 061. The IRR was 73.54 per cent which was higher than the lending rates of commercial banks. The results of the study indicated that even though ber cultivation required relatively higher initial capital investment compared to other fruit crops, the returns were higher during the bearing period and economic indicators clearly indicated that the production of ber was economically viable.

Govinda Reddy *et al.* (1997) identified the problems of mango growers in Srinivasapur region of Karnataka. The major constraints faced by mango growers at the production level were lack of knowledge on the application of balanced fertilizers (88% of respondents) followed by lack of awareness on drip irrigation (84%) technology, heavy rain and wind during flowering and fruit development stage (82%), non- availability of credit (80%), non-availability of labour (78%), high cost of inputs (74%), lack of knowledge on proper plant protection chemicals (63%), lack of knowledge on technical guidance (43%), high incidence of pests, diseases (36%) and the availability of quality grafts (26%). The major constraints in mango exports were lack of nearby processing units, storage facilities, pre cooling units, knowledge in chemical treatments of units, regulated markets and improved harvest. Other problems were exploitation by middlemen, lack of grading etc.

Gunjate (1997) reported problems of cashew plantation management at regional fruit research station, Vengurla, Maharashtra, he observed that some problems in cashew plantation management were non-availability of right kind of inputs, inadequate funds, nonavailability of suitable farm equipments and machinery, non-availability of qualified and experienced personnel. He concluded that it is necessary to make available the grafts of the choicest variation

in all the regions. Replanting the gaps should be done as early as possible and it should never be left beyond second year. The prophylactic sanitary measures recommended found to be quite effective against stem and root borers.

Krishna and Ramanna (1997) conducted study on profitability of mango cultivation in drought prone areas: A case study of Anantapur district of Andra Pradesh. The capital productivity measures indicated that the investment on mango garden in the region was profitable proposition. The investment can be recovered by the farmers in 11.5 years and the benefit cost ratio was 1.46:1. The positive net present value indicated the soundness of investment made in the mango cultivation. The internal rate of return also indicated favorable nature of return.

Singh and Singh (1997), in the study Profitability of ber cultivation in arid region of Haryana, indicated that, the net returns per hectare from ber orchards were Rs. 4,816 and the average cost of production of ber was found to be Rs. 114 per quintal and Rs. 6,746 per hectare. The net returns per rupee of investment in ber orchard were Rs. 1.99. Findings of the study lead to conclusion that the ber cultivation has much potential as an economically viable alternative to existing crop cultivation.

Saraswat (1997) conducted a study on organisation of production and marketing of apple in Himachal Pradesh: A case study of Kirari village. The study found that, in the study area on an average, the farmer incurred Rs. 26.72 on packing. The channel used by the most of the growers was Producer _ forwarding agent _ commission agent_wholesaler _ retailer _ consumer. The analysis reveals that the producers share in consumer's rupee was 42.28 per cent. The marketing cost borne by the producer was 31.64 per cent of consumer's rupee.

Sudarshan (1998) in the project conducted on an experimental farm in Bangalore reported that tissue culture banana had a world record of 6,900 plantlets per hectare. The reported that tissue culture banana had a world record of 6,900 plantlets per hectare. The reported that tissue culture banana had a world record of 6,900 plantlets per hectare. The same variety, compared to average national yields per plant of 9 to 10 Kg (bunch weight) and average commercial banana produce yield per plant of 15 to 20 Kg in sucker based crop, the tissue cultured plantlets yield a bunch weight of 40 to 60 Kg per plant. The plantlets yield175 tonnes as against 45 tonnes of

conventional commercial sucker based banana horticulture in India. The estimated revenue per crop of 11 months was Rs. 12.5 lakhs per hectare at a conservative price of Rs. 5 per Kg of banana. The revenues were further augmented by selling stem cores, which may fetch Rs. 3 to 5 per Kg at whole sale. The tissue culture daughter suckers could also be sold, which may fetch a price of Rs. 5 per sucker.

Khunt*et al.* (2001) studied economics of production and marketing of pomegranate and found that dying of young plant, problem of mite inadequate irrigation water and its poor quality and short supply of electricity were major problems faced by pomegranate growers of Bahavnagar district.

Shivanad (2002) studied the performance of banana plantations in northern Karnataka. The study revealed, as perceived by the farmers the major problems in cultivation of banana were severe incidence of *Musa sercospora*disease in all the districts of northern Karnataka, the disease lead to heavy crop losses. Erratic onset of monsoon was another problem in Belgaum district affecting banana plantations. In Gulbarga district the non-availability of labour and high labour wages and non-availability of technical assistance for improved cultivation of banana pose severe problem in production of banana. In marketing of banana farmers were facing the problem of delayed payments of sale proceeds, high cost of transportation of produce, wide price fluctuations and high commission charges.

Sundarvaradarajan and Jahanmohan (2002) studied the marketing cost, margin, price spread and marketing officers of cashew in Tamil Nadu, observed following five different marketing channels of cashew.

1] Farmer-village trade-wholesale-processor-trader

2] Farmer-cooperative marketing society.

3] Farmer-commission agent-wholesales-processor.

4] Farmer-processor.

A majority of the farmers (60%) adopted channel-1followed by channel-2 (26.25%), channel 3 (10%) and channel 4 (3.75%).

Sundaravardarajan and Ramanathan (2003) estimated the establishment cost of cashew plantation for the first year at Rs. 7690, Rs. 8,664 and at Rs. 9,491 for marginal, small and large farmers, respectively. The maintenance cost of cashew plantations in the case of marginal farms were Rs. 4,059, Rs.4, 410, Rs.4, 910, Rs.5, 385, Rs. 841 Rs. 6,332 Rs. 6,771 and RS 6,990 for second, third, fourth, fifth, sixth, seventh, eighth, ninth year respectively and in case of large farms the maintenance cost were Rs. 5,040, Rs. 5,250, Rs. 5,764, Rs. 6,145, Rs 6,558, Rs. 7,021 Rs. 7,438, and Rs. 7,745 for second, third, fourth, fifth, sixth, seventh, eighth and ninth year respectively. The input output ratio per ha were 1.43, 1.55 and 1.83 for respective farms.

Sunil kumar (2004) in his study on tomato growers in Belgam district of Karnataka reported that, majority of the farmers (75.83 %) faced the problem of technical knowledge and guidance about improved cultivation practices as well as post-harvest technology. Whereas, 65 percent of the respondents faced the problem of high fluctuation in market price followed by high transportation cost (62.53 %), labour shortage and high wage (55.53 %) on lack of irrigation facilities on power shortage (46.66 %) respectively.

Tarde*et al*, (2004) in their study on pomegranate growers surveyed and reported that majority of the farmers faced the problems like difficulty in taking bahar during rainy (77.1 %) and summer season (74.3%), long distance of markets(90.3%), non-remunerative prices for fruits (88%) and fluctuation in price of fruits (84.5%).

Anand (2005) conducted study on economic analysis of production and marketing of papaya in North Karnataka. The capital productivity measures indicated that the investment on papaya garden in the region was profitable proposition. The benefit cost ratio was 3.51. The positive net present value indicated the soundness of investment made in the papaya cultivation. The internal rate of return also indicated favorable nature of return.

Gowda and Gowda (2005) conducted a survey among grape growers (100 growers of Thompson Seedless grapes and 100 growers of Bangalore Blue grapes) in Karnataka, India, to determine the reasons for partial adoption and non-adoption of sustainable grape farming practices.

Importantreasons cited for non-adoption and partial adoption were: lack of knowledge; lack of technical guidance; non-applicability; financial problem; and non-availability of farm inputs

Umesh*et al.* (2005) observed that the establishment cost of cashew was Rs15631 per ha in all the variety studied during the first three years. The maintenance cost per ha from fourth year on wards varied from Rs 5881 to Rs 8254 in Chintamani –1, Rs. 5640 to Rs 8254 in Ullal–4, Rs. 5812 to Rs. 7882.In Ullal- 3 and Rs. 5821 to 7229 in ullal at the net returns of cashew orchard per ha being fairly high were in the order of Rs. 61314, Rs 62425, Rs. 49672 and Rs. 34231 in Chintamani–1 Ullal –4, Ullal-3 and Ullal- 1.

Chaudhariet.al (2009) attempted to study the economics of production and marketing of custard apple in Vidarbha region of Maharastra State. The study was based on primary data of sixty farmers collected from nine tehasils of Akola, Buldana and Washim districts. The selected custard apple growers were classified into three groups on the basis of age of custard apple. At overall basis per hectare cost of establishment and cost of cultivation were Rs.39611 and Rs. 24746, respectively. The input output ratio at cost 'C' was 1.92. The study revealed that the profit was increasing with the age of orchard.The marketing cost of custard apple was worked out to Rs.155.03 per qtl. In marketing custard apple three major channels were observed but mostly marketing was done by, producer - wholesaler - retailer - consumer channel. The producer's share in consumer's rupee was more in channel I.

Kumbhar et.al (2014) made an attempt to analyze the feasibility of investment in guava orchards and to find out the profitability of guava crop. So, present study was taken up with overall that is producer to consumer. Objective of enquiring into economics of guava production and marketing, with the objectives to examine the per hectare resource use pattern and costs and return structure, to study the marketing costs, price spread and problems faced in production and marketing by guava growers. The methodology adopted was, on the basis of area under hi-tech farming of guava, Ahmednagar, Pune and Nasik districts was selected purposively. The data for the year 2011-12 was collected with the help of specially design schedule. The simple statistical tools like averages and percentages were used for interpretation of the results. On the basis of results it is concluded that, the inputs *viz.,* manure, nitrogen, phosphorus and potash were used at

lower level than the recommended levels for guava, therefore there is gap in yield. The guava fruit crop is economically viable as B: C ratio is more than unity. The N fertilizers, plant protection and human labour was significant, indicating that these are the important variable for raising the production of guava. Channel observed in marketing of guava is: Producer-Pre-harvester contractor-Wholesaler-Retailer-Consumer. The arrivals of guava are fluctuating in all the markets under study.

RESEARCH METHODOLOGY

The chapter deals with the methodology used in achieving the objective of the study. It comprises sampling design and analytical tools used to achieve final result. For cohesiveness and clarity in presentation, this chapter can be classified into two broad sections. The first section focuses on the sampling design to select the district, block, village, farmers, market functionaries' as well marketing channel and collection of data etc. The second section is related with the analytical tools and technique applied.

For the present study the methodological aspect has been discussed under the following five heads.

Sampling design

Collection of data and method of enquiry

Period of enquiry

Analytical tools

Concepts and Definitions Used in the Study

3.1 Sampling design

Data has been collected from phalsa growers. Multistage sampling design is used for the study.

3.1.1 Selection of District

The total number of districts in Uttar Pradesh is 75. Among these district, Varanasi district of Uttar Pradesh was selected purposively for study, because Varanasi district is one of the major phalsa growing district of Uttar Pradesh.

3.1.2 Selection of the Block

Out of the 8 Block in Varanasi district, Chiraigaon block was selected purposively because maximum number of phalsa growers is there in this block.

3.1.3 Selection of villages

5 villages from selected block were selected purposively where maximum number of farmers grow phalsa.

3.1.4 Selection of farmers/growers

A list of all the phalsa growers from each selected villages was prepared and total 30 growers were selected randomly and they were arranged in descending order on the basis of the land holding and further sorting had been done for area allocation under phalsa in following ways:-

i. Marginal size group having less than 1 ha land.

ii. Small size group having above 1 ha. and less than 2 ha. land

iii. Medium size group having 2 ha. land and above.

3.1.5 Marketing channels

The most common marketing channels used in the marketing of phalsa in Varanasi district are as follows:

i. Producers – consumers

ii. Producers – retailers - consumers

3.2 Collection of Data and Method of Enquiry

The data on production and marketing aspects were collected by personal interview method. Several visits were made to collect correct information.

3.2.1 Primary Data

Primary data was used in the present study. Primary data was collected with the help of pre-tested schedule prepared in advance. Survey method was adopted for the present study.

3.2.2 Secondary Data

The secondary data sources include the web portals and different magazines, thesis, project reports, and journal related with Agri-business and data available with the department or university.

3.3 Period of Enquiry

The study was undertaken for the year 2017-18. The study covered all cultivation and marketing activities adopted by the phalsa growers during agricultural year 2017-18.

3.4 Analytical Tools

The collected data are summarized in tabular form so that it becomes relevant to the various objectives of study. Thus the collected data are analyzed by simple tabular method. So, the entire information presented in such a way as to provide a base for subsequent analysis and interpretation of the findings. The project was carried out to fulfill the specified objectives of the study.

3.5 Concepts and Definitions Used in the Study

3.5.1 Planting material

Seedlings purchased from nursery at the rate prevailing in the study area were treated as planting material cost.

3.5.2 Farm Yard Manure (FYM)

Farm yard manure was charged as per the prevailing market rates during the period of study in the study area.

3.5.3 Fertilizers

The fertilizer cost was calculated at the actual price paid by farmers.

3.5.4 Irrigation charges

The charges for electricity or fuel paid towards lifting well water were allocated to the phalsa crop in proportion to the area under each crop.

3.5.5 Human labour

Labour was estimated in terms of man days. The labour cost was computed based on the actual wages paid by the growers. The same wage rates were imputed for family labour also.

The wage rate considered was Rs. 150 to 200 per labour.

3.5.6 Rental value of land

Rental value of land was calculated as per the rate prevailing for irrigated/unirrigated land in the study area.

3.5.7 Interest on fixed capital

Interest on fixed capital was calculated at the rate of 10 per cent on fixed capital at which the banks charge for the long-term loan.

3.5.8 Price spread

The difference between the price paid by the consumer and price received by the producer was the marketing margin or price spread.

3.5.9 Gross income

It is the value of total quantity of phalsa produced at the prices where the product is sold.

3.5.10 Net returns

This was defined as the difference between gross returns and total cost incurred by farmers.

3.5.11 Retailers

Retailers sell the phalsa directly to the consumer in the market. They purchase the produce either from farmer, trader or commission agent and sell it to consumers.

3.5.12 Marketing Channels

Marketing channels is a path traced in the direct transfer of little to a product as it moves from a producer to ultimate consumes to industrial users. Market channel is the structure of intra company agents & dealer. Wholesaler and retailers through which the commodity products are service is marketed.

3.5.13 Marketing Cost

Marketing cost is the actual expenses incurred in bringing the good and services from the producer to the consumer marketing cost included, handling charges at local point, assembling charges, transport handling by whole seller and retailing charge to consumer. These cost are paid by the producer to marketing function arises.

3.5.14 Total Marketing Cost

Total cost incurred are marketing of phalsa by the farmer & the intermediaries Involved in the process of marketing was calculated as –

C = Cf + Cmi

Where –

C = Total cost of marketing

Cf= Cost paid by the farmer from the time of produce to till he sale phalsa

Cmi = Cost incurred by the middleman in the process of marketing (buying and selling phalsa.)

3.5.15 Fixed cost

Fixed cost include cost incurred on family labor, rental value of land revenue, interest and overhead charges including interest on fixed capital and depreciation, repairs etc.

3.5.16 Compound of costs and returns

If you want to calculate the future value of an investment, earning a constant rate of interest, this is done using the following compound interest formula:

$$\text{Future Value} = P\,(1 + r)^n$$

Where,

P is the initial amount invested/ returns obtained

r is the annual interest rate;

n is the number of periods over which the investment is made.

DESCRIPTION OF THE AREA

4.1 General description of Varanasi district:

Varanasi, or Benaras, (also known as Kashi) is one of the oldest living cities in the world. Varanasi`s prominence in Hindu mythology is virtually unrevealed. Mark Twain, the English author and literature, who was enthrilled by the legend and sanctity of Benaras, once wrote: “Benaras is older than history, older than tradition, older even than legend and looks twice as old as all of them put together”

Varanasi is a city on the banks of the Ganges in the Uttar Pradesh state of North India, 320 kilometres (200 mi) south-east of the state capital, Lucknow, and 121 kilometres (75 mi) east of Allahabad. A major religious hub in India, it is the holiest of the seven sacred cities (*SaptaPuri*) in Hinduism and Jainism, and played an important role in the development of Buddhism and Ravidassia. Varanasi lies along National Highway 2, which connects it to Kolkata, Kanpur, Agra, and Delhi, and is served by Varanasi Junction railway station and LalBahadurShastri International Airport.

Varanasi is also one of 75 districts in the Indian state of Uttar Pradesh. At the time of the 2011 census, there were a total of 8 blocks and 1329 villages in this district. Main languages of Varanasi are Banarasi, Bhojpuri/Awadhi.

Varanasi, considered as an important seat of learning in India. Varanasi is said to be a compound of the names of two streams, the Varuna and the Assi, which still flow in the north and south of the city respectively. This name seems to have been corrupted, in medieval times to Banaras, which was in use till May 24, 1956 when it was changed to Varanasi, by an order of the Government of India. Varanasi is probably one of the most ancient living cities in India. From time immemorial it has been a great religious center for Hindus and one of their most sacred places of pilgrimage, being visited by millions of people every year.
The places worth visiting in the city of Varanasi are the several ghats that dot the riverside, and the hundreds of temples that form part of the old city of Varanasi.

4.2 History of Varanasi

According to Hindu mythology, Varanasi was founded by the god Shiva.During a fight between the two supreme gods, Brahma and Shiva, one of the five headsof Brahma was torn off by Shiva.The land of Varanasi (Kashi) has been the ultimate pilgrimage spot for Hindus for ages. Often referred to as Benares, Varanasi is the oldest living city in the world. These few lines by Mark Twain say it all: "Benaras is older than history, older than tradition, older even than legend and looks twice as old as all of them put together". Hindus believe that one who is graced to die on the land of Varanasi would attain salvation and freedom from the cycle of birth and re-birth. Abode of Lord Shiva and Parvati, the origins of Varanasi are yet unknown. Ganges in Varanasi is believed to have the power to wash away the sins of mortals.

Ganges is said to have its origins in the tresses of Lord Shiva and in Varanasi, it expands to the mighty river that we know of. The city is a center of learning and civilization for over 3000 years. With Sarnath, the place where Buddha preached his first sermon after enlightenment, just 10 km away, Varanasi has been a symbol of Hindu renaissance. Knowledge, philosophy, culture, devotion to Gods, Indian arts and crafts have all flourished here for centuries.

Vaishnavism and Shaivism have co-existed in Varanasi harmoniously. With a number of temples, Mrs. Annie Besant chose Varanasi as the home for her 'Theosophical Society' and PanditMadan Mohan Malviya, to institute 'Benares Hindu University, the biggest University in Asia. Ayurveda is said to be originated at Varanasi and is believed to be the basis of modern medical sciences such as Plastic surgery, Cataract and Calculus operations. MaharshiPatanjali, the preceptor of Ayurveda and Yoga, was also affiliated with Varanasi, the holy city. Varanasi is also famous for its trade and commerce, especially for the finest silks and gold and silver brocades, since the early days.

Varanasi has also been a great center of learning for ages. Varanasi is associated with promotion of spiritualism, mysticism, Sanskrit, yoga and Hindi language and honored authors such as the ever-famous novelist Prem Chand and Tulsi Das, the famous saint-poet who wrote Ram CharitManas. Aptly called as the cultural capital of India, Varanasi has provided the right platform for all cultural activities to flourish. Many exponents of dance and music have come from Varanasi. Ravi Shankar, the internationally renowned Sitar maestro and UstadBismillah

Khan, (the famous Shehnai player) are all sons of the blessed city or have lived here for major part of their lives.

4.3 Geography

The city of Varanasi is located in the middle Ganges valley of North India, in the Eastern part of the state of Uttar Pradesh, along the left crescent-shaped bank of the Ganges river. It has the headquarters of Varanasi district. The "Varanasi Urban Agglomeration" - an agglomeration of seven urban sub-units - covers an area of 112.26 km 2 (approximately 43 mi²). The urban agglomeration is stretched between 82° 56‘E - 83° 03‘E and 25° 14‘N - 25° 23.5‘N. Being Varanasi is situated in the agro climatic zone of eastern plain of Uttar Pradesh, bordering the district Jaunpur in the north, Ghazipur in the Northeast, Chaundauli in the east, Mirzapur in the south and SantRavidasnagar in the west. The total area of district is 1526.36 sq. km, supporting a population of 31.48 lakh persons. This district is densely populated, with 2063 person per square km, as against the state average 689 person per square km. This district is divided into eight blocks namely, Baragaon, Araziline, Chiraigoaon, Cholapur, Haruha, KishividhyaPeth, Pindra and Sewapuri.

Varanasi is often said to be located between two confluences: one of the Ganges and Varuna, and other of the Ganges and Assi, (Assi having always been a rivulet rather than a river.) The distance between these two confluences is around 2.5 miles (4.0 km), and religious Hindus regard a round trip between these two places—a *Pancha-kroshiYatra*(a five mile (8 km) journey) ending with a visit to a *SakshiVinayak Temple* as a holy ritual.

Table No. 4.1 Geographical area

S.No.	Particulars	Value
1	Geographical area (Sq. km)	1526.56
2	Forest (ha)	412
3	Net sown area (ha)	113.946
4	Total cropped area (ha)	157.096
5	Cropping intensity (%)	138
6	Fallow land (ha)	2587
7	Land not available for cultivation(ha)	10003

4.4 Demographics

According to provisional data from the 2011 census, the Varanasi urban agglomeration had a population of 1,435,113, with 761,060 men and 674,053 women.

The population of the Varanasi urban agglomeration in 2001 was 1,371,749 with a ratio of 879 females every 1,000 males.However, the area under VaranasiNagar Nigam has a population of 1,100,748with a ratio of 883 females for every 1,000 males.The literacy rate in the urban agglomeration is 77% while thatin the municipal corporation area is 78%.Approximately 138,000 people in the municipal area live in slums.

Table No. 4.2 Population of Varanasi

S.No.	Particulars	Value
1	Male	761,060
2	Female	674,053
3	Total	1,435,113

Table No. 4.3 literacy rate (%)

S.No.	Particulars	Value (%)
1	Total	67.09
2	Male	83.66
3	Female	48.59

4.5 Climate

Varanasi experiences a humid subtropical climate (Koppen climate classification *Cwa*) with large variations between summer and winter temperatures.The dry summer starts in April and lasts until June, followed by the monsoon season from July to October. The temperature ranges between 22 to 46 °C (72 to 115 °F) in the summer. Winters in Varanasi see very large diurnal variations, with warm days and downright cold nights. Cold waves from the Himalayan region cause temperatures to dip across the city in the winter from December to February and temperatures below 5 °C (41 °F) are not uncommon. The average annual rainfall is 1,110 mm. Fog is common in the winters, while hot dry winds, called loo, blow in the summers.In recent years, the water level of the Ganges has decreased significantly; upstream dams, unregulated water extraction, and dwindling glacial sources due to global warming may be to blame.

Through a combination of water pollution, new constructions of upstream dams, and increase in the local temperature, the water level of the Ganges has recently gone down significantly, and small islands have become visible in the middle of the river.

Table No. 4.4 Rain fall (mm)

S.No.	Particulars	Value
1	SW monsoon (June-Sep):	944.5
2	NE Monsoon(Oct-Dec):	60.9
3	Winter (Jan- March)	56.5
4	Summer (Apr-May)	19.8
Agro-climatic zone		Eastern plain region

4.6 Economy

According to the 2006 City Development Plan for Varanasi, approximately 29% of Varanasi's population is employed.

Approximately 40% are employed in manufacturing, 26% work in trade and commerce, 19% work in other services, 8% work in transport and communication, 4% work in agriculture, 2% work in construction, and 2% are marginal workers (working for less than half of the year).

Among manufacturing workers, 51% work in spinning and weaving, 15% work in metal, 6% work in printing and publishing, 5% work in electrical machinery, and the rest work in a wide variety of industry sectors.Varanasi's manufacturing industry is not well developed and is dominated by small-scale industries and household production.

4.6.1 Weaving

Silk weaving is the dominant industry in Varanasi. Muslims are the influential community in this industry with nearly half a million of them working as weavers, dyers, sari finishers, and salespersons. Weaving is typically done within the household, and most weavers are Momin Ansari Muslims.Varanasi is known throughout India for its production of very fine silk and Banarasi saris, brocades with gold and silver thread work, which are often used for weddings and special occasions.

4.6.2 Manufacturing

In the metal manufacturing sector, Diesel Locomotive Works is a major employer. Bharat Heavy Electricals, a large power equipment manufacturer, also operates a heavy equipment maintenance plant. Other major commodities manufactured and traded in Varanasi include hand-

knotted Mirzapur carpets, rugs, dhurries, brassware, copperware, wooden and clay toys, handicrafts, gold jewellery, and musical instruments.

4.6.3 Agriculture

Varanasi produces large quantities of langra mangoes, which are variety developed in the area. Banarasipaan (betel leaf) and khoa (a milk product) are popular, and the related small-scale industries employ many people.Chiraigaon very famous for cultivation Guava fruit crop. It have many small unit of food processing which makes Pickle, Sauce, Jam, and Jelly.

Table No. 4.5 Agriculture allied work forces

S.No.	Particulars	Value
1	Cultivators	207666
2	Small and Marginal farmers	195581
3	Agricultural labours	102573
4	Artisans	92567
5	Others workers	303283

4.6.4 Tourism

Tourism is Varanasi's second most important industry.Nearly 6.3 million domestic tourists and 690,472 foreign tourists visited Varanasi in 2015. Domestic tourist most commonly visit for religious purposes while foreign tourist visit for ghats along river Ganges and Sarnath. Most domestic tourists are from Bihar, West Bengal, Madhya Pradesh, and Uttar Pradesh, while the majority of foreign tourists are from Sri Lanka and Japan.The peak tourist season falls between October and March.In total, there are around 12,000 beds available in the city, of which about one half are in inexpensive budget hotels and one third in dharamsalas.Overall, Varanasi's tourist infrastructure is not well developed.

4.7 Varanasi district profile at a glance

Table No.4.6 Administrative units

S.No.	Particulars	Value
2.1	No of block	8
2.2	No of village (inhabited)	1262
2.3	No of villages (electrified)	728(57.68%)
2.4	No of villages with portable water supply	1262(100%)

Table No. 4.7 Area under irrigation ('000 ha)

S.No.	Particulars	Value
1	Net irrigated area	82.206
2	Gross irrigated area	134.073
3	Rainfed area	13.542

Table No. 4.8 Area of major soils ('000 ha)

S.No.	Particulars	Value
9.1	Sandy loam	70.560
9.2	Loam	25.000
9.3	Clay loam	37.800
9.3	Sandy	19.320

Table No. 4.9 Area under Horticultural Fruits crops ('000 ha)

S.N	Particulars	Value
1	Mango	12.381
2	Guava	16.434
3	Lemon	5.405
4	Ber (Indian Plum)	0.310
4	Papaya	0.100

Source: http://en.wikipedia.org/wiki/Varanasi
http://agricoop.nic.in/agriculturecontingency/uttar-pradesh/2012

RESULTS AND DISCUSSION

The main objective of the study was to analyze the cost of cultivation and return from phalsa crop in Chiraigaon block of Varanasi district, U.P. The specific objectives were to examine the cost of cultivation, returns, marketing cost and marketing constraint in phalsa production. In this section the results are presented under the following heads keeping in view the objectives of the study.

1. To study the cost of cultivation and returns of phalsa production.
2. To identify the different marketing channels of phalsa.
3. To estimate the marketing cost of phalsa.
4. To identify the constraints in phalsa marketing.

This chapter deals with the result of the primary data collected from the sample of 30 respondent farmers.

5.1 Farmer's profile

The farmer profile includes age group, cultivated area and based on crops grown.

5.1.1 Age groups of farmers

The table 5.1 revealed that farmers belong to three age groups however results clearly indicates that the majority of farmers belong to middle age and old age groups(above 40) while the first age group less interest in farming.

Table 5.1 Age groups of respondent farmers

Age groups	NO. of farmers	Per cent
18-30	7	23%
31-40	9	30%
Above 40	14	47%

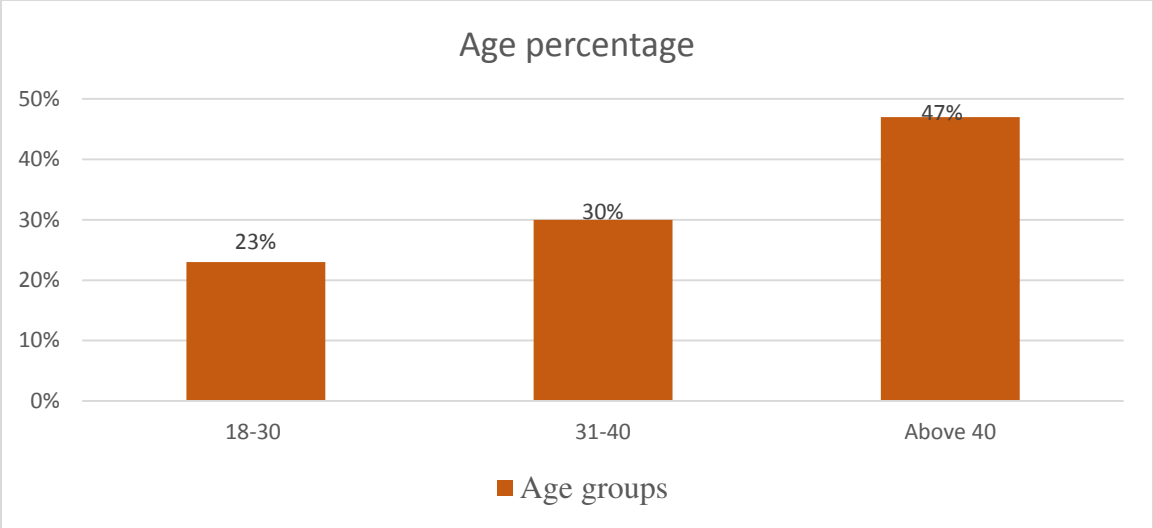

Figure 5.1 Age gropes of respondents farmers

5.1.2 No of farmers and their cultivated area

Table 5.2 reveals that the marginal and small farmer was found in sample size of study area. Marginal farmer are 28 and small farmer is only 2 while medium farmer is zero in sample size of the study area. The highest percent (93) farmers are marginal while small farmers only 7 percent.

Table 5.2 No of farmers and their cultivated area

Type of farmers	No of farmers	Per cent
Marginal farmers (> 1 ha.)	28	93
Small farmers (1-2 ha.)	2	7
Medium (Above 2 ha.)	0	0

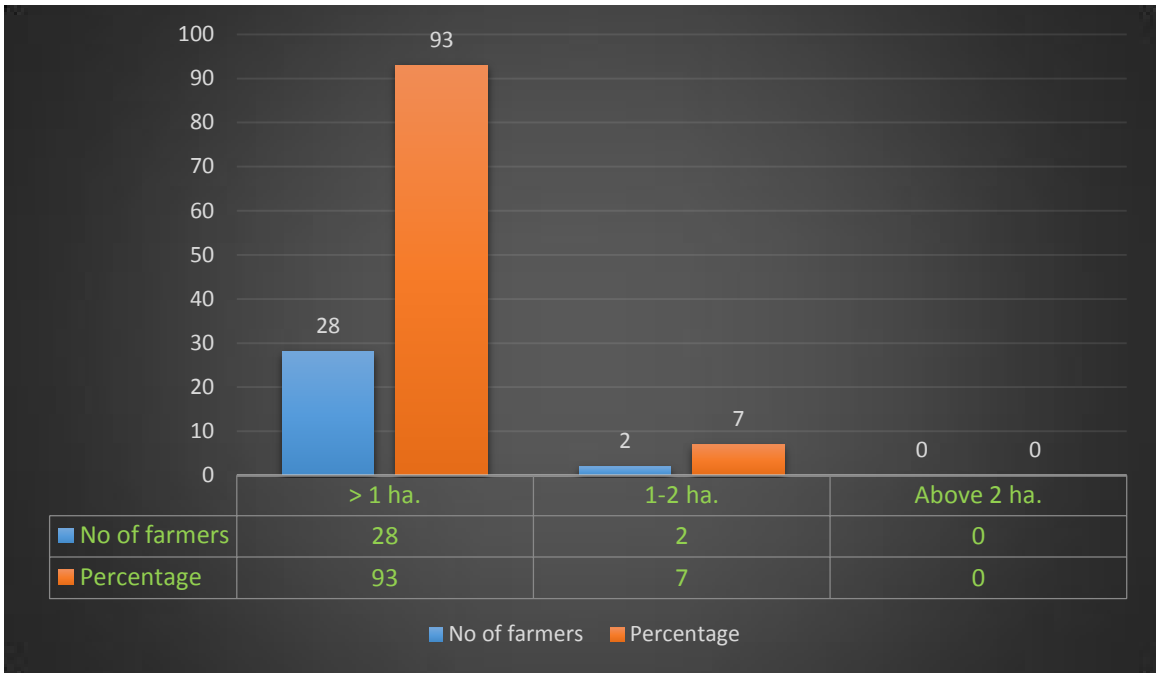

Figure 5.2 No of farmers and their cultivated area

5.1.3 No of farmer grown different seasonal crops

Table 5.3 revealed that maximum 73 percent farmer grow Rabi and Kharif, 17 percent grow Zaid crop and 40 farmer grow perennial simultaneously phalsa crop. The figure show that maximum no of farmer grow Rabi, Kharif and perennial crop.

Table 5.3 No of farmer grown different seasonal crops

Crops	No of farmers	Per cent
Rabi crop	22	73
Kharif crop	22	73
Zaid crop	5	17
Perennial(other than phalsa)	12	40

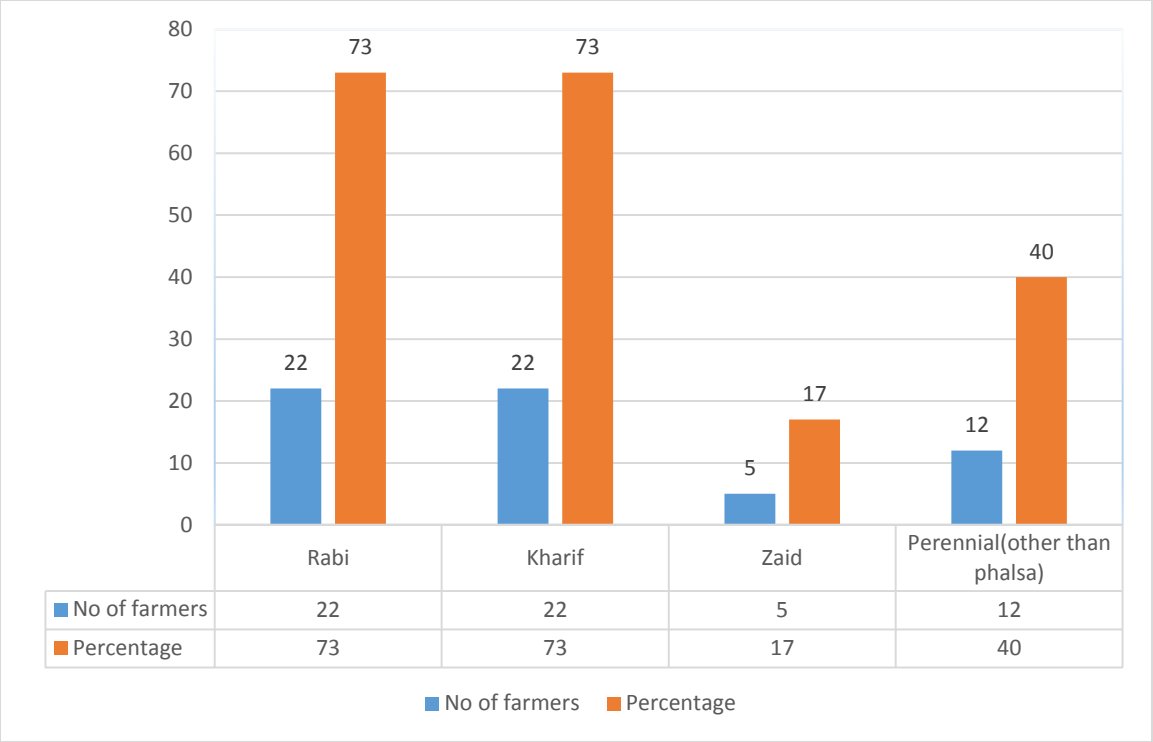

Figure 5.3 No of farmer grown different seasonal crops

5.2 Cost of cultivation of phalsa

In the farm management studies on costs are viewed from different angle. The cost of cultivation of any crop is the most important aspect of the farm economy both at micro and macro level point of view. Almost every day in farm organization and operational cost consideration enters. It is important tool for measuring business activities. Investments in phalsa crop were categorized into establishment cost and maintenance or operational cost. First year of cultivation is incurred establishment cost and operational cost incurred bearing period (up to 25 years). The economic life of phalsa is 25 years. Input wise cost under different items such as human labour both family labour and hired labour, pit digging, seedling material transplanting cost, manures and fertilizers, insecticides, irrigation charges, rental value of owned land and interest on fixed capital etc. was worked out.

Table 5.4 Cost of cultivation of phalsa (Rs. /hectare)

S.No.	Particulars	Cost (Rs.)	Percentage of total cost
1	Pit digging	1,328	0.72
2	Seedling	5,877	3.18
3	Transplanting	862	0.47
4	Pruning	12,499	6.78
5	Intercultural operation	14,572	7.90
6	Irrigation	3,824	2.07
7	Manure and fertilizers	3,614	1.96
8	Plant Protection	3,033	1.64
9	Rental value of land	60,000	32.53
10	Interest on fixed capital @10 %	6,026	3.26
11	Harvesting Cost	72,800	39.48
12	Total Cost	184,435	100

Table 5.4 it is observed from the table that the average cost per hectare incurred by phalsa growers is Rs.184435.

Major cost is incurred on harvesting cost (Rs. 72800) which accounted for 39.48 per cent of total cost of cultivation. The second major cost incurred on rental value of land (Rs.60000) which is 32.53 percent followed by expenditure on harvesting cost. 7.90 per cent cost incurred on intercultural operation Rs. 14572 one of the major cost. A very small cost incurred on pit digging and transplanting Rs. 1328 (0.72 per cent) and Rs. 862 (0.47 percent) respectively.

Cost of pruning is Rs. 12499 which accounted for 6.78 percent of total cost of cultivation. Among the material cost manure and fertilizer contributed 1.96 percent (Rs.3614) where irrigation cost is Rs. 2824 (2.07 percent). Interest on fixed capital is share 3.26 % cost (Rs.6026) of the total cost of cultivation.

5.3 Returns of phalsa

Returns are received from phalsa fruits as a main product and phalsa bush as a by product.

Table 5.5 Returns from phalsa (Rs. / hectare)

S.No.	Particulars	Return(Rs)	Per cent
1	Return of main product	448,000	95.73
2	Return of by product	20,000	4.27
3	Gross return	468,000	100
4	Net return	283,565	
5	Net return per rupee of investment	1.54	

Table 5.5 clearly shows that Average net return from main product and by product is Rs. 283,565 while the gross return is Rs. 468,000 (100%) up to 25 years. Major return comes from main product are Rs. 448,000 (95.73 per cent) and only 4.27 per cent (Rs.20, 000) return recieved from by product out of gross return. Net return per pupee of investment is Rs 1.54 which means Rs. 1.54 net return received from 1 rupee of investment.

5.4 Marketing of phalsa

Phalsa is a perishable commodity, so it is necessary to market it quickly. There are many markets situated in the Varanasi district. Major fruits markets in the district are Chandua manddi, Paharia, Sunderpur,Rajatalab, Panchkoshi and Nawapokhar. While the Chiraigaon block farmer are sale phalsa fruits in Nawapokhar manddi.

5.4.1 Marketing channels of phalsa

A marketing channel is a route through which produce move from farmer (Producer) to the ultimate consumer. The length of the channel varies from commodity to commodity, depending upon the quantity to be moved, the form of consumer, demand and degree of regional specialization in production of phalsa. Two marketing channels through which phalsa fruits in the study area were marketed by the producer to the ultimate consumers were identified.

They are:

1. Producers --- Consumers
2. Producers ----- Retailers ---- Consumers

5.4.2 Marketing cost of phalsa Rs. per quintal

Table 5.6 Channel-1 (Producers - Consumers)

S.No.	Particulars	Rs. Per quintal prices of phalsa fruits
1	Net price received by producers/farmers	8000
2	Marketing cost paid by producers	
a)	Transportation cost	120
b)	Loading ,unloading cost	12
c)	Middle man / Mondi charge	0
3	Total marketing cost paid by producers	132
4	Price paid by the consumers	8132

Table 5.6 shows that the marketing cost paid by producer is Rs.132 per quintal. The producer received net price Rs 8000 per/qt. In this channel middle man cost is Rs.0.0 while transportation cost and loading and unloading cost is Rs. 120 and Rs.12 per qt. respectively. This show that if the producer sells his produces directly to consumer it would be the most profitable.

Table 5.7 Channel -2 (Producers - Retailers - Consumers)

S.NO.	Particulars	Rs. Per quintal prices of phalsa fruits
1	Net price received by producers/farmers	8000
2	Transportation cost	120
3	Loading ,unloading cost	12
4	Price paid by retailers	8132
5	Marketing cost paid by retailers	868
6	Marketing margin of retailers	2000
7	Price paid by consumers	11000

Table 5.7 shows that the involvement of producer, middle man, and retailers in marketing transaction. In this case producers get net price Rs. 8000 per qt while price paid by consumers Rs. 11000. Price paid by retailer is Rs. 8132. Marketing cost paid by retailer is Rs.868 while transportation and loading/unloading cost is same as first channel. It can be observed from the above table cost of marketing is increases and consumers purchase price is high. The table shows a big gap between producers price and consumers price Rs. (11000 – 8000 = 3000)

5.4 Constraints faced by farmers in marketing of phalsa

Opinion survey was conducted to know the constraints faced by the farmers in phalsa marketing; the results are presented in the Table 5.8

Table 5.8 constraints of marketing of phalsa

S. No.	Particulars	No of respondent out of 30	Percentage
1	Involvement of middleman	28	93
2	Lack of training facility	27	90
3	Fluctuation of Price	25	83
4	Lack of storage facility	24	80
5	Lack of processing awareness	18	60
6	Lack of price awareness	10	33
7	Lack transportation facility	8	27

From the Table 5.8 it could be seen that, 93 per cent of respondents told the involvement of middleman as the major problem in marketing of phalsa. The other problems were lack of training facility (90 percent), fluctuation in price (83 percent), lack of storage facility (80 percent), lack of processing awareness (60 percent), lack of price awareness (33 percent) and lack transportation facility (27 per cent).

Summary and Conclusions

Agriculture plays a vital role in India's economy. 54.6% of the population is engaged in agriculture and allied activities (census 2011) and it contributes 17% to the country's Gross Value Added. The net sown area works out to be 43% of the total geographical area. The net sown area works out to be 43% of the total geographical area. Horticulture crops cover an area of 23.8 million ha (m. ha) at present by registering increase of about 17.8% as with a production of about 283.4 million metric ton, horticulture production has witnessed an increase of about 34.3% during the period 2007-08 to 2015-16.The significant feature is that there has been improvement of productivity of horticulture crops, which increased by about 13.8% during this period.
Phalsa (Grewia asiatica) is a subtropical plant indigenous to India, and is grown in Utter Predesh, Madhya Pradesh, Punjab, Haryana, Rajsthan and Maharastra.Phalsa is capable of growing under neglected and water scarcity conditions where only a few other crops would survive. It prefer dry and hot environment during flowering.

Phalsa is an important minor fruit crop of India. It is a hardy and small bushy in nature and preferred as an ideal crop for growing in arid and hot region. It can be grown in hilly area because it is a drought resistant crop.

The phalsa plant can be grown in wide climatic conditions except high attitude. The plant grown satisfactorily up to an elevation of 1000 m.It can grow at temperature ranging from 3 °C to 45 °C. Plant can tolerate light frost.

The phalsa stem is a hard woody,circular and non-hairy. The bark of phalsa is rough grey coloured. Phalsa is a shrub or a small tree reaching to four meters of sometimes more in height (sastri, 1956).

The phalsa fruits are consumed as fresh , desserts or processed in to refreshing fruit and soft drink viz; Syrup, juice and Squash etc and enjoyed during hot summer months. It has a cooling effect .Not only the fruits of phalsa is very testy and beneficial but also the other part of the tree have their own advantages. The bark is also is used to make ropes and as a substitute for soap.
The leaves are also used as cattle fodder. The branches are used to make basket for carrying vegetables and fruits, as a fuel.

The phalsa fruits contain highcarbohydrate (6.8 to 25.8 %), sugar and acid(0.42 to 2.5 %) and very little protein and fat. The citric acid in the major acid in the fruit with traces amount of malic acid. The fruits are rich in vitamins and mineral.It contains high amount of vitamin A and high antioxidant value. The phalsa fruits are rich in flavonoids, carotenoids and anthocyanins. Flavonoids have known antioxidant activities while anthocyanins help to reduce the risk of heart disease by inhibiting cholesterol formation. The phalsa fruits are rich in potassium, which plays important role in energy metabolism and normalizing blood pressure.

The fruits cures thirst and burning sensation, remove and cure inflammations. These are said to be good for heart and blood disorders, fevers and diarrhea. The fruit is also good for the troubles of throat. It also helps to remove the dead foetus. The unripe fruits and bark of phalsa plant cures biliousness and *Vata* and *Kappa*. It also cures urinary troubles and the burning sensation of reproductive system.

The root bark is used for the root bark is used for rheumatism. The leaves are used as an application to pustular eruptions.The flower contains grewinol, a long chain keto alcohol (Laxmi and Chauhan, 1976). The seed of phalsa contains 5 percent oil, which is bright yellow in color and contains 65 % linoleic acid, 13 .5 % oleic acid and 11% stearic acid (Morton, 1987)

Objectives

1. To study the cost of cultivation and returns of phalsa production.
2. To identify the different marketing channels of phalsa.
3. To estimate the marketing cost of phalsa.
4. To identify the constraints in phalsa marketing.

Primary data was used in the present study. Primary data was collected with the help of pre-tested schedule prepared in advance. Survey method, by personal interview was adopted for the present study.

The secondary data sources include the web portals and different magazines, thesis, project report, and journal related with Agri-business and data available with the department or university.The study was undertaken for the year 2017-18. The study covered all cultivation and marketing activities adopted by the phalsa growers during agricultural year 2017-18.

Findings

1. As far as sample of farmers are found47 per cent above the 40 years of the age groupand 30 per cent farmer are found between the 31 to 40 years age groups. Only 23 per cent are found in young age group.
2. As far as sample farmers, the majority of farmers are marginal farmer account of 93 percent and small farmers are 7 per cent while medium farmers are zero.
3. According to primary data 73 per cent farmer grow Rabi and Kharif, 17 per cent grow Zaid crop and 40 farmer grow perennial simultaneously phalsa crop.
4. Among the harvesting cost alone contributed highest an average of Rs. 72,800/ha per year accounted for 39.48 per cent of total cost of cultivation.
5. The second major cost incurred on rent of the land Rs. 60,000 (32.53 per cent).
6. Among the material costs manure and fertilizer contributed 1.96 per cent (Rs.3614) where irrigation charges incurred Rs. 3824 (2.07 per cent). Interest on fixed capital share 3.26 % (6026) of the total cost of cultivation.
7. Net return from main product and by product is Rs.283, 565 while the gross return is Rs. 468,000.
8. Major return from main product is Rs.448, 000 (95.73 per cent) and only 4.27 per cent (Rs. 20,000) return obtained from by product out of gross return.
9. The farmers sales our produces through two marketing channels i.e. producer to consumer and producer to retailer to consumer.
10. The marketing cost paid by producer through sales the marketing channel - I, Rs.132.
11. Net price received by producer/farmer through first marketing channel is Rs 8000/qt. and Price paid by the consumers is Rs.8132.
12. Net return per rupee of investment is Rs.1.54.
13. The marketing cost paid by retailer in second marketing channel - Rs.868 and marketing margin of retailer is Rs. 2000 while price paid by consumers Rs.1100.
14. There were many problems faced in marketing of phalsa fruit crop. 94.44 per cent of respondents told the involvement of middleman as the major problem in marketing phalsa. Nearly 83 per cent of the farmers expressed the problem of fluctuation of price.

Another problem was lack of storage facility (80 per cent). About 60 per cent of the farmers expressed lack of processing awareness and only 27 per cent farmer expressed lack transportation facility.

Suggestions

- The high capital is required for establishment of phalsa in first year of cultivation, so there is a need to make available adequate credit facility and low rate of interest to phalsa producers.
- Farmers should be trained for cultivation alongwith processing.
- Appropriate training programme have to be organized with respect to grading and sorting of phalsa.
- Non-availability of scientific storage facility was one of the major factors contributing to lower returns from phalsa. Therefore, suitable storage facilities are essential to stabilize the returns of phalsa growers by increasing the storage life of the fruit.

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Appendix

TITLE – ECONOMIC ANALYSIS OF PHALSA PRODUCTION AND MARKETING IN CHIRAIGAON BLOCK OF VARANASI DISTRICT(U.P.)

SCHEDULE

1. General information of farmers
   a) Name ……. b) Age……
   c) Gender ……..Male/Female
   d) Village……..
   e) Block - Chiraigaon f) District - Varanasi
   g) Nearest Market Place……...
   h) Distance from the village……..km.
2. Land area and crop allocation (beegha/acre/hectare)
   1. Area under cultivation…….
   2. Area under Phalsa……..
   3. Other than Phalsa
      1) Ravi 2) Kharif
      a) Crop……...….Area……. a) Crop……...Area……
      b) Crop…….....Area…….. b) Crop……....Area……
      3) Zaid-
      4) Crop ……..……..…Area…….
      5) Crop ……...Area……..…

Date…… Sig. of invigilator…….....

3. Cost of cultivation of Phalsa

a) Establishment cost /ha/beegha/acre

Sr. no.	Particulars	Cost (Rs.)		
		Qty.	Rate	Value
1	Pit digging (no of digs)			
	Labour(Mandays)			
2	FYM			
3	Fertilizer			
4	Labour for 2&3			
5	Seedling(no)			
6	Transplanting (no of labour)			
7	Irrigation			
	Labour(mandays)			
8	Plant protection Chemical (gm)			
	Labour(mandays)			
9	Rent/Rental value of own land			
10	Fencing			
	Labour (mandays)			
11	Total estb. Cost			
12	Income from intercrop			
13	Net estb. Cost			

b) Operational and maintenance cost/ha/beegha/acre

S. no.	Particulars	Cost (Rs.)		
		Qty.	Rate	value
1	Pruning Labour (mandays)			
2	Intercultural operation Labour (mandays)			
3	Fertilizer			
	Labour (mandays)			
4	Irrigation			
	Labour(mandays)			
5	Plant protection Chemical (gm/ml)			
	Labour(mandays)			
6	Rent/Rental value of own land			
7	Harvesting (Picking)			
	Labour(man-days)			
8	Total operating cost			
9	Production (qt.) Main product			
	By product			

C) Operational cost and return/ha/beegha/acre

Production Years	Operational cost (Rs.)	Return		Gross return (Rs.)
		Main product (Rs.)	By product(Rs.)	
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

2) Marketing of Phalsa

a) Price of Phalsa fruit…… …Rs. /kg.

b) Price of by product ……..Rs. /qt.

c) Grading cost and packaging ……....Rs. /qt.

d) Transportation cost ……...…Rs. /qt.

f) Middle man cost……...……..Rs./qt.

g) Loading and unloading cost……...….Rs./qt.

h) Storage cost……...….Rs. /qt.

i) Retailer marketing cost ……..……. Rs. /qt.

j) Retailer margin……..….. Rs. /qt.

k) Other cost……...Rs. /qt.

3) Selling

a) To consumer …….....Y/N

b) To market/manddi……Y/N

c) To seller…….……Y/N

d) Other……

4) Marketing constraints

a) Lack of marketing awareness……..Y/N

b) Transportation facility…….....Y/N

c) Fluctuation of price…….....Y/N

d) Lack of storage facility ……..…..Y/N

e) Involvement of middleman …….....Y/N

f) Lack of processing awareness…….....Y/N

g) Lack of tanning facility……....Y/N