

## **Consumption of Different Varieties of Rice in Different States of India**

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### **Abstract**

Rice is a part of staple food of Indian Diet, a vast variety of rice is cultivated in various parts of the country, every variety has specific taste and according to that specific taste a particular variety is sold in much greater quantity in various geographical locations of the country. But which variety is liked more than other variety in every state of India is a matter of research. Thus, current research puts light on finding the consumption of different varieties of rice in state of Uttar Pradesh, West Bengal, Punjab, and Andhra Pradesh. This provides the data about the consumption of a particular variety of rice in relatively higher quantity over the other one in different locations of India thus opening the future perspective to conduct more research on the connection of different varieties of cereals and pulses and average consumption of that specific variety in a particular state.

**Keywords:** Bhutmuri, Consumption of Rice, Kakri, Kelas, Pari, Rice, Rice Production, Zinni.

### **Introduction**

The cultivation of rice in Indian subcontinent plays a significant role in the Indian economy. Major crop cultivation locations are there in Indian subcontinent. India constitutes amongst few of the largest global cultivator of the rice, involving brown rice and white rice, cultivated mainly in the southern and eastern areas of the India. The cultivation raised from fifty six millions of tons in FY (Financial Year)1980 to seventy four millions of tons in the year 1990, a rise of thirty nine percent is seen in the in the decade. By 1992, the cultivation of rice had reached one hundred and eight one kg per person, which was at the second rank in the world after China having global cultivation at one hundred and eight two kg[1]. Since 1950, the cultivation of rice has raised to almost three hundred fifty percent. The increased rice cultivation is the result of high yield; the area of cultivation in hectare did not increase during that time period. Final yield increased from 1,336 kg per hectares in FY 1980 to 1,751 kg per hectares in FY 1990. The rice cultivation per hectare raised higher than 262 percent from 1950 and 1992[1]. Total cultivation of rice lowered to eighty nine million ton in 2009-2010 cultivating year (July–June) from a record of 99.18 million ton in 2008-09 year because of drought that resulted in almost half of the country to produce less rice. India would have gained a record in the cultivation of rice with 100 million ton in July 2010 to June 2011 because of better rainfall relative to previous year. The cultivation of rice in India had reached to a record mark of one hundred and four million tonnes in July 2011 to June 2012. Figure 1 shows the dry productive paddy field of the Southern part of Indian sub-continent and Figure 2 shows the rice crop in paddy field in the Andhra Pradesh of the Indian Subcontinent [1], [2].



**Figure 1: Shows the Dry Productive Paddy Field of the Southern Part of Indian Sub-Continent**  
[1]

Rice is amongst the most widely used Indian grain. However, our India covers the maximum land under the cultivation of rice, rice is amongst few of the prime crops of food. Rice is the ruling food grain of India. India is amongst the few prime cultivator of rice. Rice is the food crop and being a tropical plant, it is grown in humid and hot temperature. Rice crop is mostly cultivated at rainy locations where high yearly monsoon is observed. That's the reason why in India, rice is mainly a Kharif crop. Cultivation of rice needs a temperature range of 25 degree Centigrade and 100 cm or more of the rainfall. The cultivation of rice is achieved by means of irrigation in particularly those locations where relatively less amount rainfall is observed. Rice is amongst the most common grain of east & south part of our country. In July 2009 to June 2010, overall cultivation of rice in our country calculated to 89.13 million of ton, and observed to be relatively lower than rice cultivation of July 2008 to June 2009 to be 99.18 million of ton[3].



**Figure 2: Shows the Rice Crop in Paddy Field in the Andhra Pradesh of the Indian Subcontinent[1]**

Rice may be grown by various techniques depending on the geography and the location. But in our country, the conventional cultivation techniques are followed till now for harvesting of rice. The rice field is primarily ploughed post that fertilisers are poured which usually contains of dung obtained from cow and after that the smoothening of field is done. The planting of seed is done with the help of hand and then with the help of irrigating efficiently, the seeds are grown. Crop of rice is cultivated on the soil of various types like loams, silts, and gravels. Rice can be cultivated in alkaline along with acidic soil[4] But, loam which clayey is best suitable for rice growth. Reason behind the selection of clayey soil is that the conversion of the soil that is clayey into mud is very convenient in that clayey soil seeds of rice can be easily implanted. Caring in a proper manner is required for the growth as the

soil of the crop remains wet because of water during the time of crops growth year. Level of field of rice must be maintained and the crop must have less heighted walls of mud for water retention. Places, where the area is plain, extra water of rain is poured inside the field of rice and is distributed gradually. Rice grown in areas having good supply of water and in low lying area, thus also called as wet rice or lowland rice. In hilly area, terraces are made on the slopes to encourage rice growth. Thus, the variety of rice which is cultivated in areas having hills is termed as dry or upland rice. The outcome of upland rice per hectare is relatively lesser in comparison to the wet rice yield[5].

The locations where rice is cultivated in our country includes eastern coastal strip, all primary deltas, the eastern coastal strip, Assam plains and low hills near assam, foothills and Terai area and foothills from the Himalaya and states including Andhra Pradesh, West Bengal, Uttar Pradesh, Odisha, Bihar, Madhya Pradesh. India has rice cultivation season, along with the deltas of rivers like Kaveri, Ganges-Brahmaputra (in West Bengal), Godavari, Krishna, Mahanadi and Indravati having a wide source of irrigation through canal like Indravti dam and Hirakud Dam, allows permits cultivator to cultivate nearly two to three crop cycles in a year. Because of proper water source, rice cultivation has become easy to cultivate nearly two to three crop cycles in a year. Punjab and Haryana also cultivate rice even after having dry climate due to the result of efficient irrigation and the cultivation is increased to an extent that the rice that is cultivated in surplus amount is exported to other states and other countries. The fields on hilly terrace from Assam to Kashmir are best suitable for the cultivation of rice, with ancient irrigation at hills. Rice varieties having high yield and better methods of planting methods, with consistent irrigation facility resulted in continuous supply of water and effective use of fertilizers has eventually resulted in fast results along with giving benefits. The reduction in the average yield is only observed from the areas receiving heavy rainfall per hectare of land [6].

In few states like Assam, West Bengal, and Orissa two crop cycle of rice are sown and cultivated every year. In north western part of India winter season is highly cold for the cultivation of rice. Rice crop is looked as it is crop which is master of India's coastal belt and in few areas of east part of India, in these areas, the duration of monsoon and summer season have high rainfall and high temperature which is ideal weather for rice cultivation. The geography of the entire country of India show accurate climatic conditions for the cultivation of rice in summer season with optimum water supply. Thus, rice cultivation is also conducted in areas of Punjab, western Uttar Pradesh, and Haryana where waterlogging is observed in low level areas during rainy season and summer monsoon [7].

Rice that is cultivated winter season is the crop of long time and the rice that is cultivated in summers is the crop of short time. At few locations in the east & southern part of country, rice crop cultivated in summers rice crop i.e. short duration of rice, is successive to winter season rice crop i.e. rice of long duration. Winter grown rice is cultivated mostly in low level areas that remain water logged majorly in monsoon. Rice crop is grown in autumn season in Maharashtra, Uttar Pradesh, Rajasthan, Punjab, Madhya Pradesh, and Himachal Pradesh. In Andhra Pradesh, West Bengal, Orissa, and Assam, summer, winter, and autumn season grown rice crop is found. Summer grown crop of rice is cultivated in less quantity and its cultivation is done on a short area. But, rice cultivated in winter season is mainly the main crop of rice covering the maximum area of land cultivated by rice throughout the year in the country. Moreover, in past some years, numerous steps were taken up to increase the yield of rice at every step. India holds the fourth rank in wheat cultivation & second in rice cultivation globally. Suitable Geography and environment for the growth of Wheat is required. In India, wheat is cultivated in winters. A moderately cool weather with moderate rainfall is required for wheat cultivation and a temperature range of 10 degree C to 15 degree C is suitable for wheat farming. But to get better yields an optimum range of temperature from 16-degree C and sunny and warm weather is required during the process of ripening.[7], [8].

## **LITERATURE REVIEW**

Seila Sar et. al. analysed rice consumption and Rice consumption patterns were seen as a significant factors causing risk of diabetes in several parts of the world. The research was focused to find out the effect of the shifting in use of white rice from recent to prominently lowered level and a change in the variety of rice from the one with a high GI to one with a low GI (glycaemic index), having the target on type 2 diabetes in Cambodia. The study does not put light on the consumption of rice variety Bhutmuri, Kelas, Kakri, Pari, and Zinni in West Bengal, Uttar Pradesh, Andhra Pradesh, and Punjab[6] .

Callcott et al. conducted a study that shows that acute usage of rice that is pigmented in a group of population that is healthy prominently raises antioxidant function along with reduction in plasma MDA and pro inflammatory cytokines. The variety of polyphenol available in pigmented rice type can be observed to raise antioxidant function and lowering in MDA and pro-inflammation cytokine, thus, polyphenol and their products are related in targeting particular antioxidant and inflammatory pathways. The outcome of the research shows that rice with pigment sometimes act as a potential effective food option in lowering oxidation induced stress and risk from swelling and related with the pathogenesis of lifestyle ailments.\_The study does not put light on the consumption of rice variety Bhutmuri, Kelas, Kakri, Pari, and Zinni in West Bengal, Uttar Pradesh, Andhra Pradesh, and Punjab [9].

Esther T. et al. carried a study that shows that high intake of rice that is pigmented in some cases effectively raise anti-oxidant count along with reduction in biomarkers of lipid peroxidation and swelling in an obese cohort. The outcome analysed in this analysis are commonly linked with the existance of polyphenols in rice that is pigmented as a result targeted swelling and anti-oxidant pathway either directly or indirectly. The mechanical mode of working for the outcome observe in this analysis is not fully analysed but the results suggests that rice that is pigmented may act as a potential working food in increasing obesity connected oxidative stress and swelling, thus, lowering factors with critical risk related with the pathogenesis due to lifestyle disease[10].

Sumithra M. et al. conducted a study on rice cultivation at global level, trade, supply, and consumption, The Food and Agriculture Organization has figured out interventions in Thailand and India and as the highly crucial to the procedure of global increase in price. The most commonly used rate for export to show the Thai market which is 5% broken. Since other prices might rise in different ways every month or day, the varied market of rice have been observed to be connected, as rates tend to rise with time [11].

### *Research Question:*

Which is the most commonly used rice variety in West Bengal, Uttar Pradesh, Andhra Pradesh and Punjab?

## **METHODOLOGY**

### *Design:*

A Questionnaire form is distributed in all shops of the wholesale grains market of different cities of Uttar Pradesh, West Bengal, Punjab and Andhra Pradesh. The questionnaire form shown in Table 1 was distributed amongst all wholesale grain dealers and questionnaire form filled by various wholesale dealers who are mainly dealing with rice selling in the entire market were considered for

further analysis and depending upon the data entered by the wholesale dealer's further study was conducted.

**Table 1: Shows the questionnaire form distributed amongst the wholesale dealers of grains in different cities of West Bengal, Uttar Pradesh, Andhra Pradesh, and Punjab**

NAME:	
AGE:	
OCCUPATION:	
How long you are doing wholesale dealing of grains? :	2 to 6 years:  6 years or more:
What all cereals you sell? :	Wheat:  Maize:  Rice:  Barley:
What quantity of Rice you sell monthly? :	1,000 lakh Kg:  More than 1,000 lakh Kg:
Which variety of Rice is demanded the most? :	Bhutmuri:  Kelas:  Kakri:  Pari:  Zinni:

The questionnaire form distributed amongst the wholesale dealers of different locations of West Bengal, Uttar Pradesh, Andhra Pradesh, and Punjab and an average result of different locations of a state is considered as a result.

#### *Data Collection:*

The questionnaire form distributed amongst the wholesale grain dealers of different locations of West Bengal, Uttar Pradesh, Andhra Pradesh, and Punjab and grain dealers who were mainly dealing with rice primarily were considered for the survey and an average result of different locations of a state is considered as the result of that state, a total data of 10 dealers was considered for the analysis. Table 2 shows the data of the total consumption of a particular rice variety in different states of India.

**Table 2: Shows the average consumption of different rice varieties Bhutmuri, Kelas, Kakri, Pari, and Zinni in West Bengal, Uttar Pradesh, Andhra Pradesh, and Punjab according to the data observed by conducting the survey**

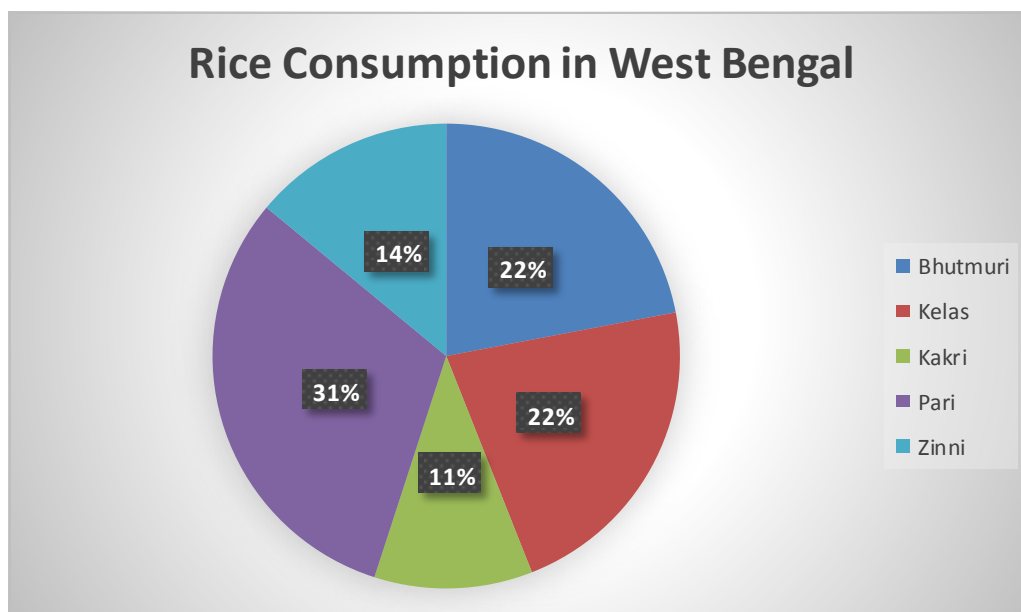
State	Average consumption of Bhutmuri rice	Average consumption of Kelas rice	Average consumption of Kakri rice	Average consumption of Pari rice	Average consumption of Zinni rice
West Bengal	22%	22%	11%	31%	14%
Uttar Pradesh	37%	27%	14%	13%	9%
Andhra Pradesh	28%	24%	9%	35%	4%
Punjab	50%	22%	11%	10%	7%

*Data Analysis:*

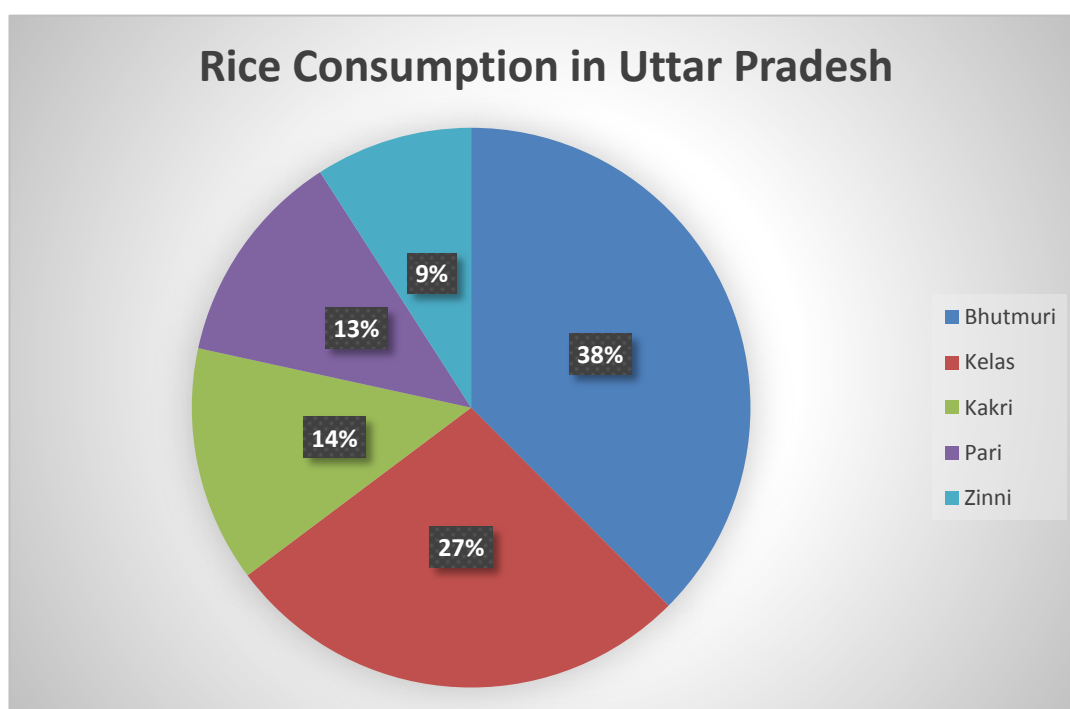
The results of average consumption of various rice varieties i.e. Bhutmuri as 22%, Kelas as 22 %, Kakri as 11%, Pari as 31 %, and Zinni as 14% in West Bengal. The results of average consumption of various rice varieties i.e. Bhutmuri as 37%, Kelas as 27 %, Kakri as 14%, Pari as 13 %, and Zinni as 9% in Uttar Pradesh. The results of average consumption of various rice varieties i.e. Bhutmuri as 28%, Kelas as 24 %, Kakri as 9%, Pari as 35 %, and Zinni as 4% in Andhra Pradesh. The results of average consumption of various rice varieties i.e. Bhutmuri as 50%, Kelas as 22 %, Kakri as 11%, Pari as 10 %, and Zinni as 7% in Punjab.

## RESULT AND DISCUSSION

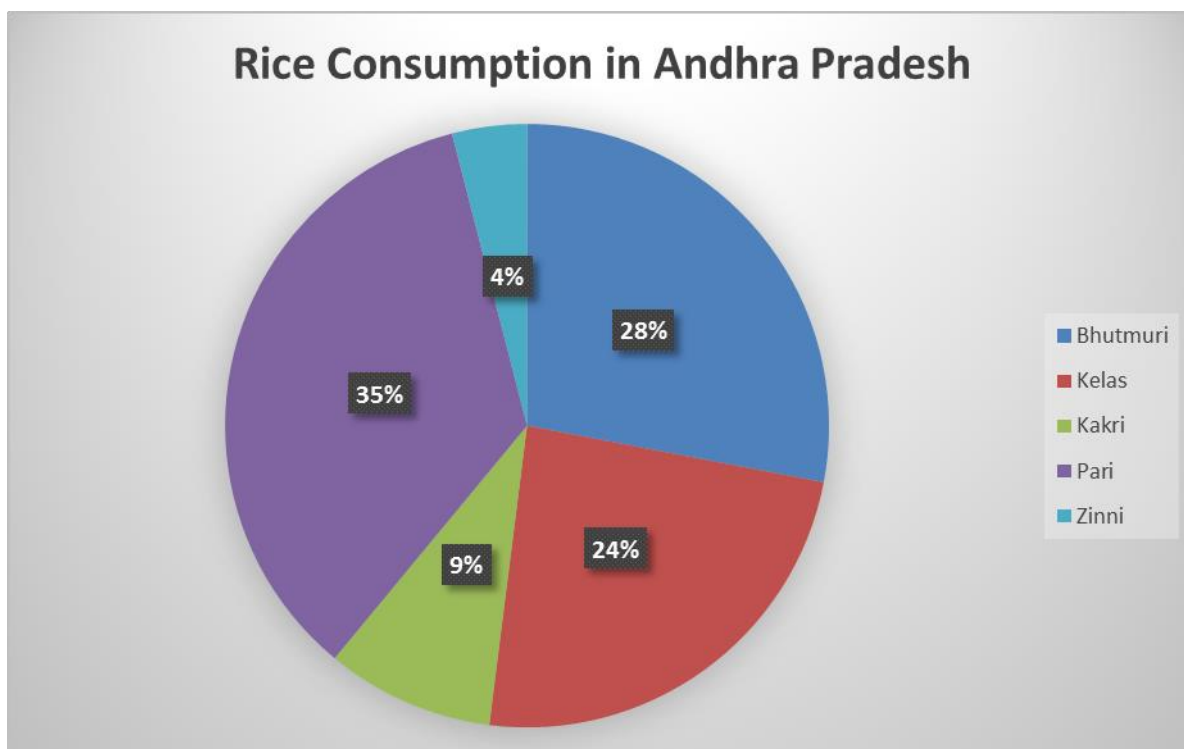
The results of the study conducted to find out the average consumption of different rice varieties Bhutmuri, Kelas, Kakri, Pari, and Zinni in different states shows that the average consumption of Bhutmuri rice variety was 22% in West Bengal, 37% in Uttar Pradesh, 28% in Andhra Pradesh, and 50% in Punjab. The average consumption of Kelas rice variety was 22% in West Bengal, 27% in Uttar Pradesh, 24% in Andhra Pradesh, and 22% in Punjab. The average consumption of Kakri rice variety was 11% in West Bengal, 14% in Uttar Pradesh, 9% in Andhra Pradesh, and 11% in Punjab. Figure 3, 4, 5, and 6 shows the results of average consumption of various rice varieties i.e. Bhutmuri, Kelas, Kakri, Pari, and Zinni in West Bengal, Andhra Pradesh, Uttar Pradesh, and Punjab. The average consumption of Pari rice variety was 31% in West Bengal, 13% in Uttar Pradesh, 35% in Andhra Pradesh, and 10% in Punjab. The average consumption of Zinni rice variety was 14% in West Bengal, 9% in Uttar Pradesh, 4% in Andhra Pradesh, and 7% in Punjab.



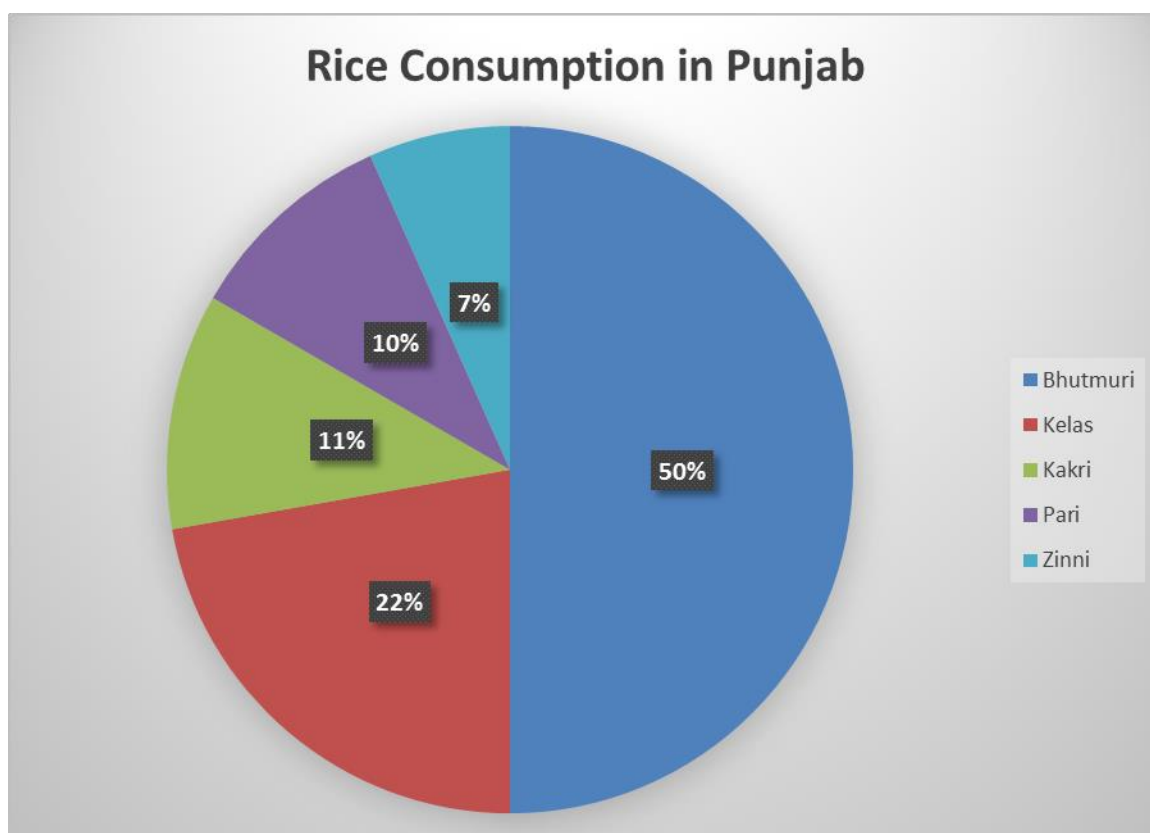
**Figure 3: Shows the results of average consumption of various rice varieties i.e. Bhutmuri, Kelas, Kakri, Pari, and Zinni in West Bengal.**



**Figure 4: Shows the results of average consumption of various rice varieties i.e. Bhutmuri, Kelas, Kakri, Pari, and Zinni in Uttar Pradesh.**



**Figure 5: Shows the results of average consumption of various rice varieties i.e. Bhutmuri, Kelas, Kakri, Pari, and Zinni in Andhra Pradesh**



**Figure 6: Shows the results of average consumption of various rice varieties i.e. Bhutmuri, Kelas, Kakri, Pari, and Zinni in Punjab**



## CONCLUSION

Rice is mainly a Kharif crop in India. Rice cultivation requires a moderate temp. of nearly 25 degree Celsius and more and the rainfall having more than 100 cm. Rice crop is also cultivated by means of irrigation in particularly such localities where relatively lesser rainfall is observed. Rice is the usual meal of east and southern India. The results of the survey carried to find out the average consumption of various rice varieties Bhutmuri, Kelas, Kakri, Pari, and Zinni in different states clearly states that shows that the average consumption of Bhutmuri rice variety was 22% in West Bengal, 37% in Uttar Pradesh, 28% in Andhra Pradesh, and 50% in Punjab. The average consumption of Kelas rice variety was 22% in West Bengal, 27% in Uttar Pradesh, 24% in Andhra Pradesh, and 22% in Punjab. The average consumption of Kakri rice variety was 11% in West Bengal, 14% in Uttar Pradesh, 9% in Andhra Pradesh, and 11% in Punjab. The average consumption of Pari rice variety was 31% in West Bengal, 13% in Uttar Pradesh, 35% in Andhra Pradesh, and 10% in Punjab. The average consumption of Zinni rice variety was 14% in West Bengal, 9% in Uttar Pradesh, 4% in Andhra Pradesh, and 7% in Punjab. Thus a specific common pattern of eating a particular variety of rice is observed in Uttar Pradesh and Punjab, whereas a similar pattern of eating Bhutmuri, Kelas, Kakri, Pari, and Zinni is seen in Andhra Pradesh and West Bengal. Thus, current research puts light on finding the consumption of different varieties of rice in state of West Bengal, Andhra Pradesh, Uttar Pradesh, and Punjab and opens the future perspective to conduct more research on the connection of different varieties of cereals and pulses and average consumption of that specific variety in a particular state.

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