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# **Market Strategies for Promotion of Millets: A Critical Analysis on Assessment of Market Potential of Ready to Eat (RTE) and Ready to Cook (RTC) Millet Based Products in Hyderabad**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. Authors DRP and BDR have conceived of the presented idea. Author DRP has worked on the manuscript in consultation with authors Seema and DSC which has been finally evaluated and analyzed by authors NSD and BDR. All authors read and approved the final manuscript.*

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## **ABSTRACT**

**Aim:** To understand the millet product features influencing consumers buying behavior and to analyze the market potential for Ready to Eat (RTE) and Ready to Cook (RTC) millet-based products in Hyderabad.

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**Study Design:** Experimental Design.

**Place and Duration of Study:** 6 months, Hyderabad.

**Methodology:** It attained the objective of analyzing market potential of millets (RTE and RTC) and also to determine the product features influencing consumer buying behavior, for which 120 consumers and 30 dealers of millets were interviewed through structured questionnaires. The results revealed that the majority of the sampled consumers are already acquainted with the consumption of finger millet, sorghum and pearl millet mostly during the Breakfast, Dinner and Lunch hours. Frequency of consumption was found to be more as both RTE and RTC forms, (46%), followed by staple grains (29%), only RTC (13%) and RTE (12%). Among all the influencing factors 'price' holds first rank followed by taste (second), brand(third), promotional offers(fourth) and packaging(fifth). Application of one sample t-test was done which presents that the average monthly expenses on millets were  $\geq$  Rs.250. From the dealers' data, it was revealed that the average price per unit for RTE is Rs.90 for the sampled millet products which were higher than that of RTC, (Rs.79.06) and grain form (Rs.77.77). By conducting a comparative analysis between the annual expenses of the consumer sample and the annual sales of the dealer sample it was found that the market has a huge potential which can still be penetrated and explored to build a lucrative market for millets in future.

**Keywords:** RTC (Ready to Cook); RTE (Ready to Eat); consumer behavior; market potential; market size; value addition.

## 1. INTRODUCTION

Prevailing changes in the food habits can be witnessed from the agile lifestyles of the people. Millets are one among the ancient grains but now they are available in modern forms of Ready to Cook (RTC) and Ready to Eat (RTE) food products as there is radical shift in consumer behavior towards healthier food habits with the increasing lifestyle diseases triggering consciousness of health, nutrition and fitness.

Millets, rebranded as "Nutri-cereals", now-a-days has occupied a corner in the palates of many consumers. Its inbound Nutri –rich benefits has captivated many consumers and also is likely to increase the demand further more in future.

On the flip side, millets have also attracted the farmers due to their fewer investments requirements such as water, fertilizer, pesticide etc. accompanied with good income generating market access. Adding to this, an increase in MSP (Minimum Support Price) of the millets can also be considered to have a positive impact on farmers cropping pattern decisions towards millet farming.

The Table 1 depicts that the highest increase in MSP is reported under Ragi crop followed by Jowar and Bajra respectively. Such supports from government may also lead to increase in area under cultivation of millet crops in India.

The eventual declining trend of the natural resource availability also identifies the need for crop shift as of paramount importance. Millets

are generally categorised into major and minor millets. The major millet include pearl millet, finger millet, sorghum and the minor millets comprise of proso millet, foxtail millet, little millet, barnyard millet and kodo millet.

India's millet production in 2017-18 was recorded as 11,550 MT showing a growth rate of 6.9 per cent over 2016 millet production in India (USDA, 2017-18). Millet production is majorly seen in countries like India, Nigeria and china which contributes 55% to the world millet production (FAOSTAT, 2018).

ICAR-IIMR has pioneered a decade of their effort in development of Value chain through various interventions which include Value addition through food processing technologies, branding them as health and convenient products. Recently developed products include –Millet based products such as Jowar idli mix, flakes, kitchdi powder, rawa, multigrain atta, pasta, upma mix, vermicelli are now commercialized under a brand "Eatrite" owned and promoted by IIMR-led consortium [1] (Indian Institute of Millet Research), Hyderabad and also millet vermicelli, crisps, puffs, porridge, nutribars, choco fills, macaroni, cakes, doughnuts, buns [2] (Value Added Products from Small Millets, TNAU and other SAU's) etc.

Currently, many startup companies are also involved in promotion and development of millet products which are handheld either technologically or Physically incubated under their patronage of Nutrihub- a technology Business Incubator funded by DST, Gol. These

include brands like Eat rite, Soufull, VSR, Go Bharati, Me Go, Ahobilam foods, Orgolite, m- For millet, Hapup, Boinapally's (Siri), Rigdam, Health Sutra, Inner being, Health Basket, Nutri magic – Solace, Hope foods and Rowan Agronature.

Taking the above-mentioned facts into consideration, the present study is undertaken to understand the millet market in a purposive study area, Hyderabad with the following objectives:

1. To understand the product features influencing consumers buying behavior.
2. To analyze market potential for RTE and RTC millet-based products in Hyderabad

Taking into consideration of the above-mentioned facts, the present study is undertaken to understand the millet market in the selected study area. This study points towards the various factors responsible for the acceptance of the millet products by the consumers and also consumer's interests, preferences and tastes towards millets which could further aid in adding feature to the upcoming innovative products. Few insights from the study can be utilized up by the new age entrepreneurs to come up with an interesting business plan using millet products.

Udaiyar [3] have studied with regard to increasing popularity of RTE food products among women in Mumbai metro city. The sample consisted of sixty women who included both, working and non – working women. A structured questionnaire was designed to collect the data. The study concluded that the major reason for increasing purchase of RTE products was due to lack of time available in the busy daily schedule (38 per cent of sample). Also, taste was considered as the most influencing factor for buying of these products which made them attractive and addictive to these products. Sixty-seven per cent of the sample also agreed that advertisement also had an impact on consumption of RTE products. The findings convey that double income, lack of time, convenience, taste etc have contributed towards popularity of RTE foods over last two decades.

Sirisha and Lakshmi [4] in their research revealed that the education, income and health level of the family are the major factors that were found to influence the consumption of millets. The study found a positive association between education levels and millet consumption. The data showed that 92 percent of the respondents were aware of benefits of millet consumption and yet the respondents were not actually consuming millets because of reasons like lack of purchasing capacity, drudgery involved in preparation of millet products and non-availability of millet products in the market.

Dayakar et al. [5] in the NAIP (National Agriculture Innovation Project) has taken up a sub project namely, Creation of Demand for Millet Foods through PCS Value Chain. IIMR (Indian Institute of Millet Research) has led the pilot project of millet value chain through Production to Consumption System (PCS). The project aimed at increasing demand for sorghum and other millets in order to bridge the gap on different aspects through a 360-degree approach. This approach includes value addition through innovation, nutrient evaluation and certification, entrepreneurship development, promotion and popularization and commercialization. The overall interventions in the sub project have led to a great linkage between the stakeholders and have linked the dry land farmers to markets. This project portrays that there is a growing interest among food businesses to enter into millet products which in turn helps in reviving millet consumption in India.

Swamy et al. [6] have conducted their research on buying behavior of consumers towards instant food products in Hyderabad city of Andhra Pradesh. The study was aimed to trace the awareness levels and factors influencing the buying behavior of instant food packs. The products for study were selected from varied categories- pickles (fruits and vegetables), Idli and Dosa mix (cereals) and Sambar mix

**Table 1. Minimum support prices of the millet crops**

Crop	MSP (in Rs/Quintal)		Percentage change (%)
	Year 2017-18	Year 2018-19	
Ragi(Finger millet)	1900	2897	+ 52.47%
Bajra (Pearl millet)	1425	1950	+36.84%
Jowar(Sorghum)	1725	2450	+42.02%

(Source: PIB, 2018)

(spices). Sample was categorized based on income levels. The results mentioned that the awareness levels were high among families having income levels below ₹10, 000 and families having above ₹20, 000. Awareness level was found to be higher for pickles and sambar mix than for Idli and Dosa mix. Major reasons for not purchasing Idli and dosa mix was “cost of preparing at home” followed by its taste. Pickles and Sambar mix were utilized much due to their availability, price and time saving factor.

Chaudhury [7] mentioned that the motives for buying RTE foods were sensory appeal, convenience, mood and price. Brand having more visibility in the market also had influence on consumer buying behavior. This study helps in understanding consumer preferences and analyzing criteria for buying RTE foods.

Sharma [8] has worked on assessment of market potential and marketing strategies of Kangra tea. A total of 110 respondents consisting of 70 consumers and 40 farmers were taken as the sample size using simple random technique. The results revealed that 85 per cent of the respondents of income group less than ₹1000 were the major consumers of tea. From the analysis “taste” was given the highest priority while choosing a particular tea brand. The study suggested establishing a strong distribution system to increase its availability to the customers. These recommendations can provide a guideline to frame strategies in case of millet products.

## 2. STUDIES RELATED TO COVID-19 PANDEMIC

Accenture [9] report titled “COVID-19 will permanently change consumer behavior” provides us with the dynamics in the consumer attitude, behavior and purchasing patterns as a result of Covid 19 pandemic. They have identified and grouped people into five different types of consumers namely, the worrier, the rationalists the individualist, the activist and the indifferent to showcase the dynamic changes in people ranging from higher to lower behavioral and attitudinal changes. From the results with regard to the shifts in purchasing behavior it was observed that the highest elevation was seen in the purchase of personal hygiene products which is 50 percent increase in case of worriers as that of 10 percent increase in case of indifferent. The increases in purchase of personal hygiene products were followed by cleaning products and tinned food by 25 percent and 20 percent net

increase respectively. Adding to these, new buying behaviors has come into play wherein the consumers are centered towards needful purchases. This pandemic has boosted the online model of shopping and also the consumers are striving to limit food waste, shop more cost consciously and buy more sustainable options. The insights from the study implies that there lies an opportunity to promote millets to a greater extent as we have observed a great shift in the consumer’s choice towards healthy and quick foods that are packed and served safely.

John M [10] in his article titled, “The corona virus pandemic and US consumption” has briefed about the current dwindling nature of consumer spending and also the impact of income on the spending. The author reports that there lies a plausible scenario of decline in the spending on food consumed from restaurants (seven percent to two percent) and also a elevation in the consumption of home cooked foods (from seven to ten percent). These provides us with insights for developing products which are quick to consume such as RTE and RTC millet-based products. The opportunity can be foreseen to push the market for processed products from millets.

## 3. MATERIALS AND METHODS

Hyderabad is chosen as the study area as it has discrete consumer base and different regions showcasing distinct demographic features such as varied income groups, different religions, cultures and habitats. The study was carried out in six zones of Hyderabad – Charminar (South Zone), L. B. Nagar (East Zone), Serilingampally (West Zone), Kukatpally (North Zone), Secunderabad (Northeast Zone) and Khairatabad (Central Zone).

Purposive sampling technique was adopted to collect primary data from consumers and dealers of millet products. From the six zones, twenty millet consumers and five dealers from each zone were surveyed based on purposive sampling method making it a total sample size of 120 millet consumers and 30 dealers from Hyderabad. The respondent sample was interviewed using a structured questionnaire. It consists of data regarding various millet-based products availability, awareness, and features of product that influence consumer buying behavior, consumption patterns, purchase cycle, expenses spent on millets etc. Market demand for RTE and RTC millet-based products were collected from the dealers.

Relevant secondary data was also collected from articles, thesis, newsletters, annual reports etc. For the analysis percentages and one sample t-Test was adopted. The study uses descriptive analysis tools, gareet ranking technique and t-test for extracting the results.

## 4. RESULTS AND DISCUSSIONS

### 4.1 To Understand the Product Features Influencing Consumers Buying Behavior

This subhead deals with the different millets, their distinct forms and the frequency of their intake by the consumer.

#### 4.1.1 Time period of respondent's millet consumption

From the consumer data, majority of the respondents have been consuming millets from more than 5 years (44%) followed by 1-3 years (16%), 1 year (15%), 3-6 months (7%), <1 month (5%), 6-9 months (3%) and 1-3 months (3%) respectively. It elucidates that more than half of the targeted sample have been consuming millets since several years.

#### 4.1.2 Millet consumed by the respondents

From the consumption Table 2 of millets it can be seen that consumers are mostly habituated with the consumption of finger millet, sorghum and pearl millet as we can see that these three millets have lesser number of respondents in the "not consumed category" in comparison to the foxtail millet, kodo millet and barnyard millet, showing lower consumption preferences mostly have once in a month frequency of consumption when compared with other millets.

#### 4.1.3 Consumption time of the day

Majority i.e. 79 consumers (65.8%) of the respondents are consuming millets as breakfast followed by 56 consumers (46.66%) who are consuming as dinner.

### 4.1.4 Form of consumption

With regard to the various forms of millet products, most of the consumers are consuming millets mostly in both (RTE/ RTC) forms (46%), as staple food grains (29%), only RTC (13%) and RTE (12%) in ascending order of consumption.

Among the various RTC forms of millets, powder mixes of *idly* and *dosa* were highly consumed followed by powder forms (*roti-mix*), millet *rava*, *upma* mix, porridge, noodles, vermicelli and millet muesli in the order.

Among the RTE products, biscuits and cookies were consumed highly when compared to other forms. Millet *kurkure*, crispys, choco bites, muffins and nutribars were also consumed by a few respondents. On the similar tone, Millet biscuits and cookies were made available and sold by most of the dealers and were listed by almost two-thirds of the dealer sample.

#### 4.1.5 Reasons for consuming millets (Likert Scale)

A five point Likert scale was applied to point major reasons from 'most influencing' to 'not influencing' scale. Table 3 reveals 'health' as most influencing reason for millet consumption and have expressed 'superiority over other products' as not influencing factor. Diabetes, taste and availability were considered influencing, neutral and less influencing respectively. It appears that millets inclusion is synonymous to its USP Health and Nutrition.

#### 4.1.6 Parameters that influence consumers to buy millet-based products (Garrett ranking)

Factors influencing were ranked using the Garrett ranking technique. The table 4 shows that price holds first rank in terms of influential factors for consumption followed by taste (second), brand (third), offers (fourth) and packaging (fifth).

**Table 2. Frequency of millet consumption**

Millets	Not consumed	Daily	Weekly	Monthly	Once in a year
Ragi	10	27	33	34	16
Sorghum	29	24	29	34	4
Pearl millet	52	5	6	36	21
Foxtail Millet	46	10	17	34	13
Kodo Millet	73	5	11	17	14
Barnyard	78	3	8	21	10

Highest value in a column; Highest value in a row

## 4.2 Analysis of Market Potential for RTE and RTC Millet-based Products

Market potential is analyzed using the data obtained with regard to the average prices mentioned for each form of millet product and the average quantity sold on monthly basis.

The Table 5 depicts that monthly expenses on millets for most of the respondents lie above Rs.250 (47.5%). Few responses have been recorded in the monthly expenses range of Rs.50 (3.3%) and Rs.500 (3%). It can be inferred that majority (93%) of the sample has its monthly expenses on millets within the range of Rs.50-Rs.500. While about 50% of them have Rs 250 at least.

## 4.3 Statistical Analysis

### 4.3.1 One sample T test to analyze the average monthly expenses on millets by the consumer

One sample t test is done when the sample size is less than 25 or when the population standard deviation is unknown. As our sample complies with the later one sample t -test has been chosen for the analysis.

### Hypothesis formulation

H<sub>0</sub>: Monthly expenditure on millets is ≥ Rs.250

H<sub>1</sub>: Monthly expenditure on millets < Rs.250

One sample t test is being performed using the formula

$$t = \frac{\bar{X} - \mu}{\frac{s}{\sqrt{n}}}$$

From the consumer sample we have obtained the values as follows;

### Interpretation:

P value approach

If P value is ≤ 0.05, accept H<sub>0</sub>

If P value is >0.05, reject H<sub>0</sub>

From Table 5, we got p value equal to 0.05, we accept the H<sub>0</sub>.

This implies than the average monthly expenditure on millets is greater than or equal to Rs250.

**Table 3. Reasons influencing consumption of millets**

Parameter	Most influencing ( Number, frequency)	Influencing (Number, frequency)	Neutral (Number, frequency)	Less influencing (Number, frequency)	Not influencing (Number, frequency)
Health	77 (64%)	130 (11%)	6 (5%)	10 (8%)	5 (4%)
Availability	13 (11%)	27 (23%)	31 (26%)	38 (31%)	30 (25%)
Taste	4 (3%)	30 (25%)	41 (34%)	27 (23%)	27 (23%)
Superiority	5 (4%)	13 (11%)	26 (22%)	23 (19%)	41 (34%)
Diabetes	21 (18%)	36 (30%)	16 (13%)	22 (19%)	17 (14%)

**Table 4. Ranking of factors influencing buying behavior of consumers**

Factors	Mean score	Rank
Price	68.33	1
Packaging	15.17	5
Brand	44.50	3
Taste	55.67	2
Offer on the product	37.00	4

**Table 5. Monthly expenses on millets**

Range of expenses (in Rs.)	Frequency of respondents (in numbers)
Rs.50	4
Rs.50-100	24
Rs.100-250	31
> Rs.250	57
Rs.500	4

#### 4.3.2 Analysis of the market value of millets

Average price and average quantity subject to the three forms of products (staple grain form, both RTE and RTC) were collected from all the dealers with respect to the products and prices they deal with.

Average Market value of the sample = Avg. price per unit x Avg. quantity sold

The Table 7. depicts that the average price per unit of RTE form of millets is higher as compared to the other two forms (RTC and Grain form) of millet-based products. The average market value (in Rs.) is higher for staple in grain form even though the average price per unit is lowest comparatively as the quantity sold takes a maximum leap than other forms of millets.

From the Table 8, it is inferred that majority of the millets market is being shared by staple grain form and there is huge untapped market potential for the RTC and RTE forms of millet products.

#### 4.3.3 Analysis of market potential for RTE and RTC millet-based products

From Table 9, the total market potential in terms of value of sale is Rs.3, 71,463.75

#### 4.3.4 Expenses per year on millets

Total respondents=85(consumers of RTE and RTC millet-based products only)

Average monthly expenses=Rs.250 to Rs.450 (Assumption from the hypothesis stated above)

Annual expenses on millets= Total no. of respondents (consuming RTC & RTE) x Avg. Monthly expenses x 12 months

Annual expenses on millets (considering lower value of expenses)  
= Rs. 2, 55,000

Annual expenses on millets (considering upper value of expenses)  
= Rs.4, 59,000

#### 4.3.5 Comparison of annual expenses and sale (in value)

From the above analysis the annual sale of millets from 30 dealers is Rs.3, 71,463.75 and the annual expenses from the RTC and RTE consumer sample (85/120) ranges between Rs.2, 55,000 to Rs.4, 59,000. The sales value lies in between the range of expense which shows the opportunity available in the market. Hence, there is good potential for RTE and RTC millet-based products

**Table 6. T-test values**

Sample size (n)	120
Hypothesized population mean ( $\mu$ )	250
Sample Mean of expenses ( $\bar{x}$ )	250.20
Sample Standard deviation (s)	136.68
T statistic	-0.06
P value	0.05

*Assuming that the Confidence interval is 95%*

**Table 7. Market value of various forms of millets**

Parameter	RTC	RTE	Grain
Average quantity sold (in kg)	1116.00	3147.00	18160.00
Average price / unit	79.06	90.00	78.00
Average Market value (In Rs.)	88,233.75	2,83,230.00	14,12,444.00

**Table 8. Percent share of Avg. market value of various millets forms**

Form	Average market value	Percentage (%)
RTC	88,233.75	4.95
RTE	2,83,230.00	15.88
Staple Grain form	14,12,444.44	79.17
Total millet market value of sample (30 dealers)	17,83908.19	100%



**Table 9. Sales value per year (Selected dealers selling RTC and RTE)**

Form	Avg. quantity sold per annum (in kg)	Avg price per unit (in Rs.)	Sales per year (in value)
RTC	1116	79.06	88,233.75
RTE	3147	90.00	2,83,230.00
Total market value			3,71,463.75

*Note: The quantity mentioned in the data is the cumulative quantity sold by dealers (in a sample) dealing with RTC and RTE product sales*

These results when generalized for population of Hyderabad, assuming that only 50% of the population consumes millet will provide us with the great hidden potential for these products in the market

## 5. CONCLUSION

The product developed must be made available at various stores to make consumers aware of its existence and also innovative products must be evolved in view of consumers of age category 5-20yrs to establish a special market segment.

1. Some dealers have well experience of millet business since years but they lack awareness on the processed products in accordance to which government can take a step forward to organise meetings and awareness programs for the millet dealers at the state level to develop entrepreneurship and to expand millet consumption.
2. Firms can go for place based marketing strategy to stand out in the market by choosing the place of sale on account of higher number of foot falls in a day. As the consumers are willing to take millet based fast foods, firms can try to take up vendor based model for selling their product.
3. Bifold awareness is the need of the hour, one generic commodity promotion in terms of their nutrition and technology advancements in terms of product diversity among the millets. Meanwhile as an immediate measure, public funded business incubator may come out with awareness programs for sensitizing urban consumers in both domestic and International markets.

From the study it can be concluded that the RTE and RTC forms of millets are being accepted and consumed by the sampled population in the study location at a fair level. Though many consumers are consuming RTE and RTC form of millets, the choice and consumption form of the

products were all the more similar among the respondents which unleashes the problem of unawareness about the existence of the varietal forms of millets in the market. Among these forms, only biscuits, cookies, roti mix and rava mixes have gained certain popularity. Awareness therefore has to be made regarding the basket of products and innovations in millet products that are devoid of gluten must take centre stage besides their suitability for tackling lifestyle diseases.

As seen from the market potential calculated from the study sample it can be established that the market holds good scope and potential in the coming future.

## DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

## CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the authors.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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