Analysis of Grain Based Distilleries in Northern and Western Maharashtra

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Abstract

The food processing industry mostly depends on agriculture and has tremendous significance in human life and its evolution. The present study covered one of the important issues, that is, working of grain based distilleries in Northern and Western Maharashtra. The objective of this paper was to study the problems faced by grain based distilleries in Maharashtra. Factor analysis was used to assign weights to each variable and extract five factors. The results revealed that finance and production were the most important factors affecting their working. The government and policy makers will find the study to be helpful in policy making and can make improvements in weak and neglected areas of the food processing industry. It would be further beneficial to the thinkers, research scholars, academicians, and government officials interested in the food processing industry.

Keywords : **grain based distilleries, finance, capital, requirement**

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India is a country of villages in which 70% of the population comes from rural areas, and more than 60% of the population depends on agriculture for their food, shelter, and clothing. Increasing demand for various agro-based products for industrial use, direct consumption, and exports has led to agro - based industrialization in our country.

It is labor intensive in character, needs less capital but more working capital. The industry includes jute, cotton, sugar, edible oil, sericulture, handicrafts, khadi, powerloom, dairy, poultry, cattle feed, fruit processing, food articles, and certain consumer goods. It may be noted that recent trends in the development of agro processing industries has attracted higher capital investments, enhanced technological complexities, and managerial requirements. Many companies have also funded the agro processing and processed foods as a lucrative avenue for agricultural diversification. The degree of processing has been considerably intensified and modernized by the growth of the processed food industry, which is based on cooking, mixing, and chemical alteration producing a textured vegetable food. By-product processing of major agricultural commodities has opened the vast potential for agro industrial growth in rural India in recent years.

The present study covers the problems of grain based distilleries in Maharashtra. In Maharashtra, most of the

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distilleries are producing alcohol from molasses, which are attached to sugar factories. Most of the distilleries work on a seasonal basis as sugar factories run only from November to March. The sugar season also varies nowadays as the sugarcane crop suffers from shortage of water due to uncertain rainfall. Most of spirits produced from molasses are used by the chemical industries. The quality of spirits produced from grain is superior as compared to molasses. The effluents generated from grain based distilleries are much easier to treat. As we know, the only Central government agency to buy and store grains is Food Corporation of India (FCI). They don't have sufficient warehouses to store tonnes of food grains. Due to this reason, they store such excess grains in open areas which later due to rainfall and other reasons get decayed. Then such grains are not even useful even for the cattle feed industry. Hence, these grains are supposed to be used by grain distilleries. Secondly, in the Kharif and Rabi seasons, when farmers produce such crops, the cost of food-grains are deliberately minimized by the traders. So, farmers don't even get their production cost. The government has also declared fixed rates for grains, and due to the low quality of such grains, traders don't pay the declared fixed rates. Due to unseasonal rains in various areas, jowar and maize get blackened. Hence, there is no value for such grains in the market. So, unfortunately, farmers have to suffer for that, which ultimately culminates into suicides by farmers. To control all these situations, grain based distilleries are the only dominant option left that can pay maximum rates to such low-class grains and such grains are the only raw material for grain based distilleries.

Similarly, rural industries save us from the evil effects in the form of negative externalities as against urban industrialization due to concentration of industries such as pollution, over urbanization, congestions, and growth of slums. Thus, agro industries play a substantial role in accelerating the process of industrialization in rural areas in a developing country like India. Growth of rural industries helps in raising the standard of living of the rural population by providing them more income, consumer goods at cheaper rates, and socioeconomic overheads. There is a vast scope for development of agro - industries in India. India should develop the agro- processing industry as an important sector of the economy on top priority.

Review of Literature

The Central government has made efforts to accelerate the pace of development in the food processing industry. A number of incentives and packages have been announced for FPI. A separate Ministry of Food Processing Industries has been established. The food processing industry has been designated as a priority industry for foreign investment, technology agreement, and attention is being given to infrastructure and other requirements of the industry (Entrepreneurship Development Institute of India, 2011). At this juncture, experts like Khosla (2012), Raikhy and Nanda (2000), Sidhu and Johl (2002), etc. advocated for the development of food processing and agro based industries that can help to achieve some long-term benefits for the state like optimum utilization of natural resources, especially soil and water, maintaining sustainability and stability in productivity and income, etc. According to Tiwale (2010), the Government of Maharashtra is offering subsidies for liquor production from food grains. This policy will turn jowar into a cash crop and divert huge quantities of food grains to alcohol production, creating scarcity and causing food inflation. Moreover, Right to Information documents have revealed the extent to which the claims made by the government have been violated – good quality hybrid jowar is being used instead of rotten jowar, and distilleries are purchasing grains from dealers and not from farmers. Madaan (2015) observed that country - wide data from the Ministry of Consumer Affairs, Food, and Public Distribution showed that of the total grain production in India, close to 48,900 tonnes was damaged in storage. Stocks usually come to the godowns after the kharif or rabi seasons. Pest attacks ; leakages in godowns ; procurement of poor quality stocks ; exposure to rains and floods ; and negligence cause losses. Thus, all the grains getting wasted in storage can be diverted to grain based distilleries for productive use.

Research Gap and Objective

Although various studies reveal different aspects of food processing units in Maharashtra, no study yet has been made on the topic of grain based distilleries in Maharashtra. The State Government of Maharashtra on several occasions has appointed various commissions to evaluate the functioning of molasses based distilleries. The terms of references of these boards of trustees and various commissions were restricted to certain issues identified with distilleries. This paper deals with the nature, problems, administration, and scope of grain based distilleries in Maharashtra. It is expected that the study would assist to make suitable policies and strategies for proper development of the grain based distilleries in Maharashtra.

Research Methodology

The study is descriptive in nature and survey method was used to complete the study. The population of the study comprised specifically of grain based distilleries from Northern and Western Maharashtra. There are 31 grain based distilleries in Maharashtra. A convenient sampling technique selected 50% of the grain based distilleries, that is, 15 from Maharashtra for the survey. For data collection, a self-designed questionnaire was administered. The data collected were subjected to analysis through SPSS. The reliability was determined through Cronbach's alpha. Factor analysis was used to extract the factors of variables. In the study, convenience sampling technique is needed. Proper care was required to approach those officials in distilleries who could easily fill up the questionnaire and were rational in their responses. The time period for the study was from June 2015 to December 2017.

↳ **Questionnaire Structure :** The questionnaire consisted of four sections, starting with general information about grain based distilleries. After that, all the sections in grain based distilleries are covered like production, finance, marketing, and other activities.

Section		Content
Section One	General	General information like name of the unit, founder's name, age, education, location of the unit, and factors considered while selecting it.
Section Two	Production	This section includes information about raw material used, production capacity, procurement of raw material, inventory control, production control, etc.
Section Three	Finance	This section includes information about cost of the project, means of finance, sources of raising capital, requirement of working capital and its sources, problems in raising capital, credit facilities, etc.
Section Four	Marketing	This section includes information about marketing channels, size of market, type of competition, internal and external factors responsible for sales, etc.

Analysis and Results

(1) Reliability Measures : Reliability analysis was employed to test the consistency level and relationship between groups of statements designed in the questionnaire. The reliability of the service quality scale was analyzed by Cronbach's coefficient alpha. The alpha is a figure that ranges between 0 and 1. The Cronbach's alpha value at 0.6 is marginally reliable, while 0.91 or above is highly reliable. It is also suggested that the Cronbach's alpha value which is over 0.7 shows good estimates of internal consistency reliability. Cronbach's alpha value was calculated as follows :

$$\mu = \frac{N^2 \times m\,(COV)}{Sum\,(VAR/COV)}$$

where,

N^2 = is the square of the number of items in the scale,

m (COV) = is the mean interterm covariance,

Sum (*VAR/COV*) = equals the sum of all the elements in the variance/ covariance matrix.

Reliability for the questionnaire was calculated through SPSS. The statistics (Table 1) came out as :

Table 1. Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	*N* of Items
.757	.718	32

It is being considered that the reliability value should be more than 0.6, and it can be seen that the reliability value is higher than the standard value, so all items in the questionnaire are reliable for the study.

(2) Factor Analysis : Kaiser - Meyer - Olkin measure of sampling adequacy was applied to check the sample adequacy.

(i) Kaiser - Meyer - Olkin (KMO) Measure of Sampling Adequacy : The Kaiser - Meyer - Olkin (KMO) measure of sampling adequacy is an index used to examine the appropriateness of factor analysis. High values (between 0.5 and 1.0) indicate that the factor analysis is appropriate. Value below 0.5 implies that the factor analysis may not be appropriate. The Kaiser - Meyer - Olkin measure of sampling adequacy value for the measures is found to be more than 0.722 (Table 2) indicating that the sample is adequate to consider the data suitable for factor analysis.

Table 2. KMO & Bartlett's Test

Kaiser- Meyer- Olkin Measure of Sampling Adequacy		0.722
Bartlett's Test of Sphericity	Approx. Chi Square	224.769
	d.f	14
	Sig	.000

Table 3. Total Variance Explained

Component	Initial Eigen Values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.598	19.991	19.991	3.598	19.991	19.991	2.589	14.381	14.381
2	2.891	16.063	36.054	2.891	16.063	36.054	2.403	13.349	27.731
3	1.964	10.913	46.968	1.964	10.913	46.968	2.297	12.763	40.494
4	1.786	9.924	56.891	1.786	9.924	56.891	2.275	12.640	53.133
5	1.742	9.680	66.571	1.742	9.680	66.571	1.914	10.634	63.767

Note. Extraction Method : Principal Component Analysis.

The results indicate that a factor analysis can be applied to the set of given data as the value of KMO statistics is greater than 0.5 and the Bartlett's test of sphericity is significant.

(ii) Factor Analysis : To identify the underlying factors of food processing industry with special references to grain based distilleries in Maharashtra. Factor analysis using principal component matrix with varimax rotation was applied. Five factors emerged after applying the factor analysis (Table 3).

(iii) Communalities : It may be appropriate to introduce another concept known as communality denoted by h^2 at this stage. It indicates how much of each variable is accounted for by the underlying factors taken together. In other words, it is a measure of the percentage of variables' variation that is explained by the factors. A relatively high communality shows that not much of the variables are left over after whatever the factors represent is taken into consideration. For example, the communality for the first variable is 0.829, which means 82.9% of the variance is informative. Content of the first variable, namely, procurement of raw materials is explained by the four factors. Similarly, the h^2 for the other variable could be computed.

(iv) Description of Factors

↳ **Financial Problems :** This factor has emerged as the most important determinant of food processing industry with special reference to grain based distilleries in Maharashtra. Major problems are : period of credit (.946), sources of raising capital (.920), working capital (.868), fixed capital (.801), and credit facility from the supplier

Table 4. Emerging Factors Affecting Grain Based Distilleries

	Rotated Component Matrix				
	Component				
	Factor 1 Financial Problems	Factor 2 Marketing Problems	Factor 3 Infrastructure Problems	Factor 4 Production Problems	Factor 5 Labour Problems
Period of credit	.946				
Sources of raising capital	.920				
Sources of raising working capital	.868				
Problems in raising the capital	.801				
Credit facility from suppliers	.778				
Channels of marketing		.956			
Internal problems of marketing		.914			
Size of the market		.658			
External factors of marketing		.648			
Power supply			.945		
Repair of machinery			.857		
Machines & equipment			.806		
Procurement of standardized raw material				.868	
Procurement of raw material				.829	
Production control				.783	
Inventory control				.663	
Labour problem					.794

(.778). These factors can be labeled as Financial Problems for grain based food processing industry in Maharashtra. The present study found that majority of the food processing units are in rural areas and their investment range is small. Many units are totally unaware of the concessions and special incentives provided by the government. Secondly, sickness of the small scale units is due to inadequacy of funds, non - availability of raw material, degraded machinery, and use of redundant technology (Table 4).

↳ **Marketing Problems :** The second most important determinant factors are internal problems of marketing (.914) and channels of marketing (.956) from the Table 4. The study of Rehman (2015) also found that marketing was a major problem in agricultural industries in India. The researcher found that majority of the entrepreneurs had agricultural family background and they faced marketing problems. Secondly, there is need of market research activity and training programmers to study the changing market environment. Traditional technology for production should be upgraded to maintain quality. Furthermore, entrepreneurs need to be daring enough to accept challenges and there should be a need for marketing strategies.

↳ **Infrastructure Problems :** The results from Table 4 show that power supply (.945), repair of machinery (.857), and machinery and equipment (.806) are the most important elements of this factor. It is observed that power supply is the sole major factor among infrastructure variables responsible for shutting the grain based distilleries in Maharashtra. Furthermore, the study reveals that when a small - scale firm wants to grow and seek new market opportunities, bottlenecks in production begin to hold back the development of the firm. It seems that these industries' owners try to find machinery that is more automated than what they have, but of a particular size that is suitable for their production and fits into their short-term expansion plans. The position of food processing grain based distilleries makes production planning a challenge for them ; small firms need to be flexible in production, and at the same time, they must be cost effective. Therefore, production should become more automated.

↳ **Production Problems :** The important elements of this factor included in Table 4 are procurement of raw material (.829), procurement of standardized raw material (.868), and production control (.783). As we know, providing remunerative prices for agricultural produce is important so that the production advantage available to India is transformed into the processing advantage. The Indian food industry has no dearth of market opportunities because of thriving domestic consumption and new avenues of foreign demand. Food processing is an important link between agriculture and industry. Scale of operations along with a fragmented supply chain is the major impediment in the path of speedy growth of food processing distilleries in Maharashtra. Concentration at the level of production, processing, and retailing can provide the much - needed impetus for the sector.

↳ **Labour Problems :** This factor includes sources of recruitment, methods adopted for selection, arrangement of training programs, etc. Many researchers found that availability of skilled labour force is the major problem in the agro - based food products industries in India.

Conclusion

The food - processing industry helps to accelerate agricultural development by giving supply of credit, inputs, and other production enhancement services, processing and marketing, and adding value to farmer's products, generating employment opportunities, and increasing farmers' net income. The food processing industry motivates the farmers for better productivity and further opens possibilities of industrial development. It can also provide a boost to many downstream industries and generate foreign exchange through exports.

After conducting the present study, it is found that the food processing industry, with special reference to grain

based distilleries in Maharashtra, is faced with various problems such as shortage and non - availability of standardized raw material at the required time, variation in quality or poor quality of raw material, unavailability of finances at the required time from nationalized banks, lengthy process of sanction, shortage of skilled workers, high competition, as well as external and internal marketing problems.

The food processing industry with special reference to grain based distilleries in Maharashtra also faces problems like power cuts, underutilization of capacity, failure in machinery, insufficient capital, no credit facility from suppliers, unawareness about government schemes, more capital investment, requirement of permanent working capital, efforts to improve quality, etc.

The above conclusions will help the entrepreneurs of food processing units to find out their problems, weaknesses, threats, etc. Also, it will be helpful to improve their performance and to build better prospects and increase the competency in the global context. The government and policy makers will find it helpful in policy making and make improvements in the grey areas of the food processing industry.

Managerial Implications

This study on grain based distilleries in Northern and Western Maharashtra contributes to the field of problems related to distilleries. From this study, it can be ascertained that the Government of India, on several occasions, has appointed various commissions to evaluate the functioning of molasses based distilleries at the national level as well as at the state level. The terms of reference of these committees are limited to certain specific problems related to distilleries. Since this is a thinly researched area, the present inquiries reveal that no comprehensive study has so far been carried out by any agency in this area of great interest, and further any academic study is yet to be conducted on this subject. It is in this context that the present study, which deals with the nature, process, problems, administration, status, and scope of grain based distilleries in Maharashtra has been carried out. The findings from this study are expected to be very useful both for management practitioners as well as for policy makers. The following are the managerial implications of this study :

- The study would help to evolve suitable policies and strategies for proper development of grain based distilleries in Maharashtra.
- It will be useful to all grain based distilleries to conduct day-to-day management of raw material and marketing of products.
- It would help the entrepreneurs to manage their businesses in a proper way for solving their general and specific problems.
- The present study provides policy prescription to the government to increase the support to grain based distilleries.

Suggestions

The present study suggests that globalization creates serious challenges for Indian small-scale food processing industries with reference to grain based distilleries. This is the time to protect the sector by technological upgradation and by providing adequate financial support with reasonable rate of interest. Intensification of food parks and participative management are required to compete for quality, price, and service. Singh and Mohuley (1996) and Madaan (2015) also suggested in their studies that due to lack of proper storage facilities and unawareness of preservation techniques, about 30% of the total production goes waste between harvest and disposal. The huge quantity of wastage can be avoided through conversion of raw material into processed foods.

The existing agro-processing units situated in the rural areas are not able to handle much quantity of grain at one time. The establishment of agro-processing units is very essential in potential areas of the districts. It will save produce from spoilage and give extra income to farmers. The processing units of rural areas of the districts will help in preservation of grains, stabilize the prices, create additional employment, and increase farmer remuneration. These industries will also be helpful in controlling out migration of farmers from rural areas (Godara, 2006). Khosla (2019) also suggested in his study that the food processing industries are crucial in increasing rural employment opportunities. Therefore, entrepreneurs should be mobilized to install processing units in rural areas because of availability of labor at cheap rates ; cost of establishment ; and cost of production of processed foods is less than what it is in urban areas.

Limitations of the Study

The analysis was carried out to ascertain the prominent factors hindering the development of grain based distilleries. It also aimed at understanding the importance of food processing industries in accelerating the agricultural development in the country. The ultimate objective was to suggest what kind of measures the food processing industries should adopt to become globally competitive. Although efforts were made to carry out analysis that was theoretically and empirically sound, like any other research, this study has limitations that could impact the findings of this study, such as the following :

- The main limitation of the study is confinement to the geographical area to Northern and Western Maharashtra only. Future studies can be carried out in Eastern and Southern Maharashtra also.
- Another limitation of this study is that the data of grain based distilleries functional upto only 2017 were considered. The financial figures could not be obtained due to confidentiality. The names of partners could also not be disclosed because of confidentiality.

Scope for Future Research

The study reveals that the grain based food processing industry assumes great significance in terms of additional income for the farmers, direct or indirect employment generation, poverty alleviation, improving agricultural productivity, reducing post-harvest losses, availability of better nutrition, export promotion, and foreign exchange earnings. It is found that these industries require less fixed capital and more working capital as compared to other industries. The agro industry annually generates 5% value-added over fixed capital as compared to 39% in other industries. These industries have great importance in the economic liberalization period in the country and the World Trade Organization (WTO) regime. The performance of exports of important agricultural and processed products has shown tremendous upward growth pattern during the last decade, and there is potential for further growth in future. Due to increasing importance of food processing sector after economic liberalization and WTO, foreign direct investment in this sector has also increased substantially (ASI). The future of food processing sector seems to be bright with growing potential for domestic as well as export markets.

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