

# A Study on Food Labelling Methods Followed by Food Processing Industries Manufacturing Ready to Eat Extruded Snacks

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**Abstract:** Food makes every living organism to survive of all the fittest by necessitating the growth, nourishment and to defend against the diseases. Advanced food processing techniques has altered the nurturing pattern of the modern man. The steady inclination is observed towards the usage of RTE foods especially snacks. Food label acts as 'mirror of the quality' for the processed food available from food industry. The study on food labelling methods of RTE extruded snacks industries showed that each product had unique brand name. From the collected food labels only one well organised industry got license from FSSAI during study period.

**Keywords:** Ready to Eat, extruded snacks, food quality, customer care, food label

## 1. Introduction

Food makes every living organism to survive of all the fittest by necessitating the growth, nourishment and to defend against the diseases. Thus it is essential to change the food from raw to processed form to serve its purpose. The food can be processed by various types of cooking, processing and preservation methods. Various types of cooking and preservation methods are being followed in each and every kitchen of India. Yet the trend is being shattered by modern life style and technology by spending little time in kitchen. It has been found that many Ready To Eat, Ready To Prepare, Ready To Serve and many more convenience foods are flooding in the food market. These provides (mostly being justified) a satisfaction towards its organoleptic features, keeping quality and nutritional security. According to Capps et al., (1985), "Complex convenience foods" characterized by high degree of processing resulting in significant time savings to consumers and have high levels of energy inputs and culinary expertise built in. The organoleptic features that is taste, colour, appearance, flavour, and texture can be judged by human senses. But keeping quality (to some extent) and nutrients in the product are beyond the perseverance of human senses (Indra and Chellam, 2014). Thus a 'Food Label' on the packaged food acts as a compendium to serve as 'purpose Indicator' of pre-processed and processed food. Food labels act as 'Mirror of the Quality' for the processed food available from a food industry. It has become a 'Necessary Tool' for every processed food especially snacks. As already mentioned, the considerable time spent in kitchen is less, the household preparation of hand extruded Indian snacks like murrukku, thenkuzhal, karasev, bhujia, mixture varieties also become limited. To serve the purpose many food industries are processing cereals and pulses to manufacture snacks in large scale. Snacks are of various types and are mostly Ready To Eat types. It includes biscuits, wafers; sweet balls made from nuts and green gram flour and extruded snacks. Extruded snacks are also of various types. It is mainly classified into homemade and

machine extruded according to type of industry from which it is manufactured. USDA, FDA, CODEX and FSSAI are the International and National bodies, who have framed rules and regulations to label a product. This study aims to analyse the food labels of both cottage industries and well developed industries manufacturing Ready To Eat extruded snacks.

## 2. Purpose of the Study

The main purpose of the study is to analyse the labelling methods adopted and followed by the industries manufacturing Ready To Eat extruded snacks. The study also aims to trace out the difference between labelling pattern of the cottage and well organised industries.

## 3. Objectives

The objectives of the study entitled "A Study on Food Labelling Methods Adopted and Followed by Food Processing Industries Manufacturing Ready to Eat Extruded Snacks" are

- To analyse the labelling methods of cottage industries manufacturing Ready To Eat extruded snacks.
- To analyse the labelling methods of well organised industries manufacturing Ready To Eat extruded snacks.

## 4. Methodology

Codex Alimentarius (2007) - General stand for the labelling of prepackaged foods- codex standard- 1- 1985 stated the following definitions

"label" means any tag, brand, mark, pictorial or other descriptive matter, written, printed, stencilled, marked, embossed or impressed on, or attached to, a container of food.

"Labelling" include any written; printed or graphic matter that is present on the label accompanies the food, or is

displayed near the food, including that for the purpose of promoting it's a sale or disposal.

Food labels of locally available 15 cottage industries, 21 well organised industries manufacturing hand and machine extruded snacks were collected randomly for the study. The study was carried only to obtain the knowledge for the food labelling practices.

## 5. Collection of Data from the Labels:

Food labels, all packaged foods have five requirements:

1. A statement of identity
2. The net contents ( by weight, volume or measure) of package
3. The name and address of the manufacture, packet or distributor
4. A list of ingredients and
5. Nutrition information

Data from the labels were collected and segregated with the above mentioned headings.

## 6. Analysis and Comparison of the Collected Data

The collected data were analysed with the requirements of the food label. The collected labels from the cottage industries and well organised industries were analysed separately. The analysed data of the labels were compared within the food labels that are the labels of cottage industries were compared among themselves and the labels of well organised industries were compared among themselves. This had been done to identify the similarities and difference between the labels of cottage industries among themselves and also the well organised industries among themselves.

## 7. Comparison of the Data with the Standards

The reviews of literatures reveal that labelling differs from country to country yet the basic information for a label to be mentioned prompt.

According to Lang T. (2006) many international, scientific and research organisations are working harmoniously to try to eliminate the differences in interests and food regulations among countries. These include codex Alimentarius Commission (a joint of UN and WHO), International organisation for standards, Global Harmonisation Initiative (GHI) and the International Union of Food Science and Technology (IUFOST). Thus the collected labels were analysed with the national and international standards.

## 8. Results and Discussion

The dramatic increase in diet-related health problems over the last few years has motivated representatives of various institutions to support consumers in making more healthful food-purchase decisions (Drichotoutis, Lazaridis&Nayga, 2006). There are many concerns regarding the format for labelling, size, impact and authority, ingredients, residues, animal welfare, allergens, environmental impact, nutrition and ethics (Lang (2006) and Cheftel, (2004)).

Packaged, processed food labels usually have two distinct areas: the principal display panel and the information panel. The principal display panel information is the part of the label the consumer will see first and is usually located on the front of the package. This panel lists the product name and net quantity of contents. The information panel is usually located to the immediate right of the principal display panel and contains the nutrition facts statements. Computer generated labels affixed to cottage products may list all required information on the principle display panel, provided that the information is displayed in size and manner that will allow the information to be read by the average consumer.

**Table I:** Labelling Details of the Well Organised Industries and Cottage Industries Manufacturing RTE Snacks

Details	Well Organised Industries (N=21)			
	Provided	Percentage	Not Provided	Percentage
Brand Name	21	100.00	00	00.00
Industry Name	21	100.00	00	00.00
Manufacturers' Address	21	100.00	00	00.00
Marketing Address	11	52.381	10	47.619
Packaging Address	02	09.523	19	90.477
Details	Cottage Industries (N=15)			
	Provided	Percentage	Not Provided	Percentage
Brand Name	15	100.00	00	00.00
Industry Name	12	80.00	03	20.00
Manufacturers' Address	12	80.00	03	20.00
Marketing Address	00	00.00	15	100.00
Packaging Address	00	00.00	15	100.00

The table-I provides the information about the details of the well organised industries manufacturing Ready To Eat snacks. It included the details of the brand name, industry name, address of the manufacturer, marketing and packaging address. The amount and type of information of food labels differ among various food products, but all labels must bear the name of the product, the net content and the name and address of the manufacture, packer or distributor (Vieira, 1996). Brand name is unique to each industry as it promotes the manufactured product to popularise it among the consumers by all the ways including their health concern, taste and quality of the product. It is the trademark of each industry. From the study it had been identified that all the industries had unique brand name. All the collected labels of well organised industries (N=21) provided the brand name which was not common to all the industries.

Hu et al. (2006) found that Labels are one of the most important features of product packaging, and they are designed to communicate a message. The industry name has been analysed separately in the study because few industries had different manufacturing address and few industries manufactured products with a different brand name. The collected labels show that all the well organised industries provided the details of their industry name and manufacturers' address. The details about the marketing address or packaging address of the labels showed that only two of the well organised industries mentioned about the packaging address. In that case, the address of the

manufacturer was same for packaging also. The labels of all the cottage industries (100 per cent) had their own brand name. About 80 per cent (N=12) of the industries mentioned their industry name and the address of the manufacturer. And none of cottage the industries (100 per cent) provided any information about the marketing and packaging address.

**Table-II:** Labelling Details of the Products Manufactured by the Well Organised Industries & Cottage Industries Manufacturing RTE Snacks

Details	Well Organised Industries (N=21)			
	Provided	Percentage	Not provided	Percentage
Product Name				
Namkeen	15	71.428	--	
Extruded Product	06	28.571	--	--
Papad	01	04.761	--	
Snack	05	23.809	--	
Net Weight	20	95.239	01	04.761
Batch No.	20	95.239	01	04.761
Packed Date/ Month	20	95.239	01	04.761
Best Before Date/Month	21	100.00	00	00.00
Details	Cottage Industries (N=15)			
	Provided	Percentage	Not provided	Percentage
Product Name				
Namkeen	--		--	
Extruded Product	05	33.333	02	13.333
Papad	--		--	
Snack	08	53.333	--	
Net Weight	12	80.00	03	20.00
Batch No.	00	00.00	15	100.00
Packed Date/ Month	09	60.00	06	40.00
Best Before Date/Month	12	80.00	03	20.00

Table -II provides the labelling of the products manufactured by the industries manufacturing Ready To Eat snacks. FSSAI (2010) indicates that Food authenticity is all about whether a food matches its description. The description of food refers to the information given as to its name, its ingredients, its origin or processes undergone. Product name helps to identify the type of product. In the case of RTE snacks it may be of papad, chips, extruded products like murrukku, namkeen etc. From the collected data it had been identified that the name of the products according the labels of the industry were categorised as namkeen (cereal pulse based snack), extruded product, papad, snack. From 21 labels of well organised industries, Fifteen (71.428 per cent) labelled their product as namkeen, six (28.571 per cent) as extruded product, five as snack and one as papad. Few labels of the well organised industries mentioned their products as both namkeen and extruded product that is why the total of the four categories exceed 100 per cent. 20 labels (95.239 per cent) of well organised industries mentioned about the net weight, packed date/month and batch number of their manufactured product respectively. Two (13.333%) of the cottage industries do not mentioned the product name while five (33.333%) had mentioned as extruded product (murrukku) and eight (53.333 %) as papad. Nine labels of the cottage industries mentioned about the packaged date and 12 (80.00%) about their net weight. 60 per cent of the cottage industries mentioned about the packed date or month whereas 40 (N=06) per cent did not mentioned about the packed date or month. 80 per cent of the cottage industry labels had

provided best before date or month and 20 per cent did not mentioned about the same.

**Table III:** Labelling Details on Quality Concern of RTE Snacks Manufactured by Well Organised Industries

Details	Well Organised Industries (N=21)			
	Provided	Percentage	Not provided	Percentage
Customer Care	21	100.00	00	00.000
<u>Storage Instructions</u>				
Air Tight Container	02	09.529	19	90.476
Away From Sun Light	02	09.529	19	90.476
Cool Dry Place	03	14.285	18	85.715
Hygienic Place	01	04.761	20	95.239
Environmental Awareness	21	100.00	00	00.000
Warning Details	06	28.571	15	71.429
Vegetarian Symbol	21	100.00	00	00.000
Special Health Symbols	10	47.619	11	52.381
Recycling of the Packaged Material	00	00.000	21	100.00

Table III depicts the data regarding the quality concern of their products. It provided the details regarding customer care, storage instructions, environmental awareness, warning signs, vegetarian symbol, special health care symbols and recycling of the packaged material. Mensah et al., (2012) states that Food labelling are of tremendous importance to the consumer (provide them a means of evaluating the food before purchase), the firm producing and selling the product (a means of communicating to the potential consumer the attributes and qualities of the product), and regulatory bodies (a means of ensuring that food produced and sold meet required standards and a means of protecting the interest of the general public.

All the collected labels (100 %) of well organised industries provided the information about customer care. The customer care of those industries provided their postal address, E-mail, website address, Toll free number or landline phone number for the contact.

Frying, baking and extrusion of the raw material tends to expand the material, which shows that the product is prepared. This is due to the displacement of water in the raw material with air to form a crispy product. Thus the prepared product (snacks) tends to reabsorb the moisture from the atmosphere when kept open. This property affects the texture of the products. Thus when the snacks are left open, the crisp texture of the product tend to be unacceptable. The storage instructions and warning sign of the labels should to be taken in consideration to maintain the texture of the product. Thus the texture is an important quality factor in case of RTE extruded snacks. Two labels (9.524 %) from well organised industries had advised to keep their products in air tight containers, three labels (14.285 %) advised to keep them in cool dry place, two labels advised to place them away from sun light and one label (4.761 %) advised it to keep in a hygienic place. The warning advice was given as "Do Not Use the Product When the Pack Is Tampered". From the collected labels, only six labels from well organised industries showed a warning advice. The fifteen labels from both the industries did not provide any warning advice.

There should be safe disposal of the packaged material where snacks are packed to avoid unnecessary environmental hazards. The snacks are packaged in polythene wraps either of single layer or with additions. Since these packaged materials are non-biodegradable, they should be disposed safely or recycled. The labels of well organised industries (N=21) showed environmental awareness. The safe disposals of the packaged material in the labels were identified with a graphical image of a man throwing the waste in a dust bin with the caption "Keep Your Environment/City Clean".

**Table IV:** Labelling Details on Quality Concern Of RTE Snacks Manufactured by Cottage Industries

Details	Cottage Industries (N=15)			
	Provided	Percentage	Not provided	Percentage
Customer Care	11	73.333	04	26.667
<u>Storage Instructions</u>				
Air Tight Container	00	00.000	15	100.00
Away From Sun Light	02	13.333	13	86.667
Cool Dry Place	00	00.000	15	100.00
Hygienic Place	00	00.000	15	100.00
Environmental Awareness	04	26.667	11	73.333
Warning Details	00	00.000	15	100.00
Vegetarian Symbol	11	73.333	04	26.667
Special Health Symbols	01	6.667	14	93.333
Recycling of the Packaged Material	02	13.333	13	86.667

Table- IV shows the labelling details on quality concern of RTE snacks manufactured by cottage industries. From the collected 15 labels of cottage industries, 73.333 per cent (N=11) provided the customer care details whereas 26.667 per cent (N=04) did not provided the details for the same. The cottage industry labels did not concern about the storage instructions of their products and thus from the data analysis only two labels that is 13.333 per cent had advised to keep their products away from the sun light. Similarly none of the cottage industries mentioned about the warning details of their products. 73.333 per cent of the collected cottage industry labels provided vegetarian symbol on their label. **Interestingly 13.333 per cent (N=02) had mentioned recycling their packaged material after use which when compared with the table V, none of the well organised industries had mentioned about the recycling of the packaged material.** In the case of cottage industries, 11 (73.333 %) of the collected labels provided the details of customer care. These labels had given name, mobile phone number and address of the proprietor of the industry. Kasapila and Shaarani (2011) stated that the labelling of pre-packaged food stuffs helps in foreign food trade. Also stated that the debates are progressive, on-going and inconclusive regarding what goes into label, the format, verifiability, size, impact and authority. The arguments and debates are constant for ingredients, residues, animal welfare, allergens, environmental impact, nutrition and ethics regarding the food labels.

Labelling of food stuffs is wanted to give consumers information on the composition of food and to protect them. Labelling of the food stuff should not mislead the ultimate consumer. Detailed but generally applicable requirements

have been formulated as to the information to be provided. Major issues are name, list and quantities of ingredients, shelf life, name and address of the manufacturer, instructions for use etc. all ingredients should be listed in descending order of quantity (Ahvenainen, 2003).

**Table V:** Labelling Details of Ingredients Added in the Snacks of Well Organised Industries Manufacturing RTE Snacks

Industries	Ingredient Details In Percentage		
	Provided	Partially Provided	Not Provided
Well Organised Industries (N=21)	02	03	16
Percentage	9.523	14.286	76.190

The table V shows the information about the labelling details of the ingredients added in the snacks of the well organised industries manufacturing Ready To Eat snacks. It had been found that almost the ingredients used in the production of the snacks were almost same. The differences were noted in the food additives, added spices and condiments. The percentage analysis is found to be necessary as it has direct impact on the nutrients present in the product. **Though the basic ingredients added in the products of the collected labels are same, the nutrient content of the labels showed difference among them. From the consumer point of view this analysis was a necessary tool for nutrition and allergen labelling.**

From the analysis of 21 labels of the well organised industries, it had been that two (9.523 %) of the industries provided the percentage level of the ingredients added in their product, three (14.286 %) of the industries mentioned the partial percentage level of the ingredients added in their product. The industries which had provided partial information about the ingredients mentioned only about the percentage level of the basic ingredients that is either a cereal or pulse and the percentage of spices and condiments added in their product. And 15 labels of well organised industries do not provide any information about the percentage level of the ingredients in their product.

**Table VI:** Labelling Details of the Ingredients Added in the Snacks of the Cottage Industries Manufacturing RTE Snacks

Industries	Ingredient Details	
	Provided	Not Provided
Cottage Industries (N=15)	07	08
Percentage	46.667	53.333

Table- VI delivers the labelling details of the ingredients added in the snacks of the cottage industries manufacturing RTE snacks. 46.667 per cent of the collected cottage industry labels provide the details about the ingredients in their product whereas majority of the collected labels (N=8) did not mentioned about the ingredients in their product

**Table VII:** Labelling Details of the Food Additives Added in the Snacks of the Industries Manufacturing RTE Snacks

Food Additives	Well Organised Industries (N=21)			
	Provided	Percentage	Not Provided	Percentage
Food Colours	07	33.333	14	66.667
Food Flavours	17	80.952	04	19.048

Food Preservatives	01	04.761	20	95.239
Anti-Caking Agents	06	28.571	15	71.429
Food Acids	04	19.048	17	80.952
Taste Enhancer	01	04.761	20	95.239
MSG	00	00.000	21	100.000
Emulsifiers	01	04.761	20	95.239
Flavour Enhancers	03	14.286	18	81.714
Acidity Regulators	03	14.286	18	81.714
Antioxidants	02	09.523	19	90.477

The collected labels of the snacks have provided information about 11 food additives in their products which can be identified from the table- VII. These additives are added to increase the taste, colour, stability and keeping quality of the manufactured product. The labels from the cottage industries (N=15) did not provide any information about the presence of additives in their product. Seventeen labels (80.952 %) out of 21 labels of well organised industries mentioned about the presence of food flavour in their product. The food flavours were noted as the presence of natural, natural identical or artificial flavours in their product. The presence of these substances can be confirmed by the spices and condiments in their product. The products with the tomato flavour (N=6) of well organised industries confirm the presence of food colour in their product.

## References

- [1] Ahvenainen, Raija (2003)., "Novel Food Packaging Techniques", Wood Head Publishing Ltd and CRC Press LLC, ISBN-1-85573 675 6, PNo.487.
- [2] Capps,O., T.R.Ted Ford and J.Havlice K, Jr. (1985)., Household Demand for Convenience and Non Convenience Foods", American Journal of Agricultural Economics 67(4): 862-69
- [3] Cheftel JC., (2004), Food and nutrition labelling in the European Union. Food Chem. 2004; 93: 531-50.
- [4] Codex Alimentarius, Food Labelling, WHO, FAO of UN, Rome, 2007.
- [5] Drichoutis, A. C., Lazaridis, P., Nayga, R. M. Jr. (2006). Consumers' use of nutritional labels: a review of research studies and issues. *Academy of Marketing Science Review*, 9, 1-22.
- [6] Ernest. R. Vieira, (1996), Elementary Food Science, IV edition, Chapter VII- Food Labels, Chapman and Hall, US.
- [7] Fssai, (2010)Vol I – Introduction To Food And Food Processing, Training Manual For Food Safety Regulators, Foods Safety & Standards Authority Of India (Ministry Of Health & Family Welfare) FDA Bhavan, Kotla Road, New Delhi – 110 002
- [8] Hu, W., Adamowicz, W. L. and Veeman, M. M. (2006)., Labelling Context and Reference Point Effects In Models Of Food Attribute Demand", American Journal of Agricultural Economics, Vol. 88(4), pp. 1034-49
- [9] Indra.R and Chellam.N., (2014), A Review on Food Labelling of Snacks., Beverage and Food World., Vol.41(3)., 21-23,26.
- [10] Lang T., (2006) Food, the law and public health: three models of the Relationship. Public Health. 2006; 120: 30-41.

- [11] Osei Mensah J., LawerDede Rose and Aidoo, R. (2012) "Consumers' Use and Understanding of Food Label Information and Effect on their Purchasing Decision in Ghana; a Case Study of Kumasi Metropolis", Asian Journal of Agriculture and Rural Development, Vol. 2, No. 3, pp. 351-365.
- [12] William kasapila and Sharigudin MD Shaarani,(2011) Harmonisation of Food Labelling Regulation in South-East Asia: Benefits, Challenges and Implications, Asia Pacific Journal of Clinical Nutrition, 2011.; 20(1), 1-8