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# PRACTICAL 10 NEW PRODUCT DEVELOPMENT

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## 10.1 INTRODUCTION

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Unit 14 in the theory course (MFN-008) covered the important area of product development and evaluation. We studied why it is important to develop new products and also about the concept of functional foods in this unit. A detailed discussion on the ingredients providing health benefits and their use in speciality foods was also presented. Geared with this knowledge now we hope you are ready for developing a new product on your own. That is what the focus of this practical is. You will find some basic information related to new product development also included in this practical which will actually get you started with this interesting activity of new product development.

### Objectives

After conducting the various activities included in this practical, you will be able to:

- enlist the various new products available in the market,
- identify the ingredients and the novel techniques involved in new product development,
- discuss the packaging and labeling requirements of different products,
- explore new ideas and concept of development of a process,
- determine the factors affecting the process of development, and
- explain the concept of shelf life of food products.

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## 10.2 WHAT IS PRODUCT DEVELOPMENT?

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Life cannot be sustained without adequate nourishment and foods of different types and in different forms are consumed to provide this very nourishment. Today, the consumers are much aware and expect better choices to be available. Changed life styles have led to the development of new products and improvement of current products. There is an increased demand for higher added value and product performance creating novel technologies for the design and development of food products.

Increased application of technologies from other areas such as engineering, agriculture marine resources has also contributed to large and continuous production, for new preservation method for a large variety of ingredients and for new food products.

We can say that development of a new product is a continuous process and is also required owing to:

- 1) Change in consumer preferences
- 2) Price advantage
- 3) Increased shelf life

- 4) Convenience
- 5) Nutritional awareness
- 6) Demand for specific foods – food targeted towards specific demographic groups such as diabetic foods, reduced fat and fat-free items and foods for specific health requirements.

Ideally a new product is defined as “*development and introduction of a product not previously manufactured by a company into a market place or presentation of an old product into a new market not previously explored by a company*”.

The development of a product can be in terms of:

- 1) Line extension
- 2) Repositioning of existing product
- 3) Reformulation of existing product
- 4) New packaging of an old product
- 5) Innovative or creative products

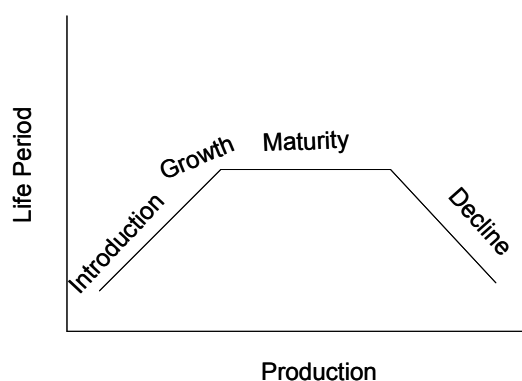
Let us learn about the product life cycle next.

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### **10.3 PRODUCT LIFE CYCLE**

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Every food product passes through different phases throughout its life and therefore, the need for development of a new product arises. Each product shows introduction, growth, maturity and decline during its period of existence. The various stages of product life cycle are shown in Figure 10.1.



**Figure 10.1: Product life cycle**

Let us review these phases in the product life cycle one by one.

#### 1) *Introduction phase*

The introduction phase, as is evident in Figure 10.1, marks the launch of the product in the market.

#### 2) *Growth phase*

Once the product crosses the introduction phase, it enters the growth phase. Generally, about 95% of the products fail at the introduction phase. Thus, a mere 5% are able to enter the growth phase. The growth phase involves strategy of product modification, enlarging distribution and maintaining a competitive price level. The strategy also involves one of extending product to different use situations and considering newer packaging alternatives to attract more and more new customers.

#### 3) *Maturity phase*

Maturity phase is characterized by slowing of growth of sales and profits, as depicted in the Figure 10.1. It also sees a boom in the market demand as more and more

customers are now willing to accept the product. This phase is also marked by strong competition.

#### 4) *Decline phase*

Decline phase, as is evident from Figure 10.1, is the phase when sales decline because customer preferences have changed in favour of more efficient and better products. Customer's value perception of the product also undergoes a change. It leads to the gradual withdrawal of the product from the market.

So we start with the introduction phase and the product moves through the whole cycle to reach the decline phase. Next, what are the factors, which affect the development of a new product? Look up sub-section 14.2.1 in Unit 14 in the theory booklet for information on these factors. We have also highlighted these factors here in the next section.

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## 10.4 FACTORS AFFECTING DEVELOPMENT OF A NEW PRODUCT

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The product development and marketing is not just selling a product, but is a highly multi-disciplinary domain comprising of technology, management, packaging specialized product positioning, regulation, advertising, promotion, distribution, infrastructure support, pricing and customer feedback.

The product should create an image that is consistent with what it can deliver to consumers. The right image is most essential to match consumer's expectation from the product.

Some elements that must be considered for product development are listed below:

- *Emerging trends*: recognizing trends as they emerge, a number of demographics, social and economic factors must be reviewed.
- *Product quality, including taste and texture*: the product design must conform to the expectation of the consumers with regard to its sensory qualities.
- *Flawless execution*: even the best product will fail if positioning, packaging or marketing is flawed or inefficient.

New product development is a *proactive process*. Products should be fully conceptualized before actual product development is undertaken. The industry not only has to take care of the sensory attributes like appearance, taste, aroma of the product but also has to look into the important issues of manufacturing, retailing and marketing along with the development. Research and development of any organization plays a pivotal role. Research and development involves a broad spectrum of activities of planning, organizing, developing and offering reactive, as well as, proactive solutions.

The main function of Research and Development in the food processing operation is the development of new products, which can contribute to overall profitability of an operation. The main factors to be considered in evaluating proposed projects include:

- Feasibility
- Historic Background
- Approach and timing
- Cost of project
- Compatibility with company's objectives
- Patent position
- Market potential
- Availability of raw materials
- Estimated investment to capitalize and estimating returns
- Sales promotion required to introduce a new product

- Legal problems
- Distribution channels
- Operational and microbiological hazards involved
- By-product utilization
- Competitors aspect

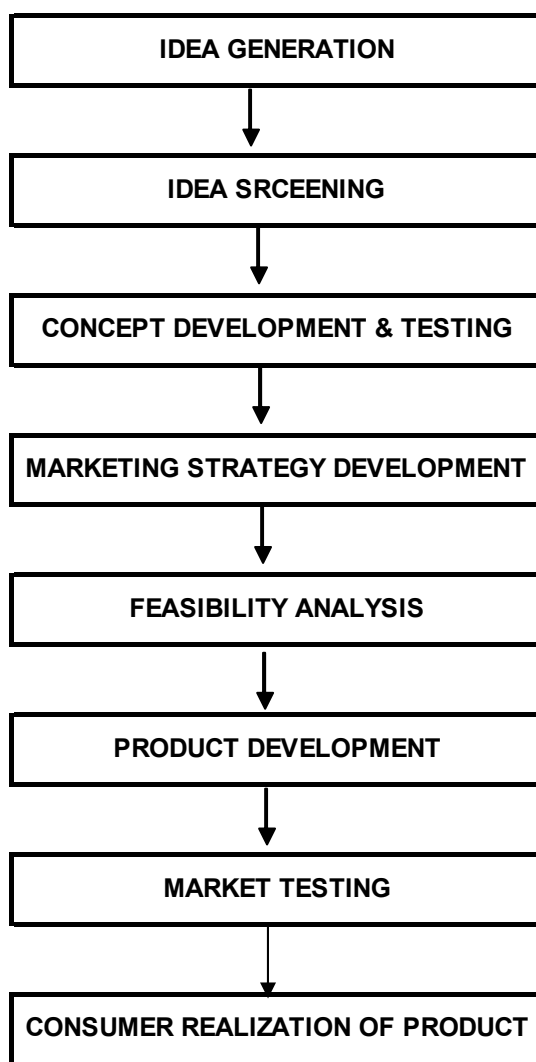
With a brief review of the factors, let us now study the actual process involved with the development of any product.

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## **10.5 THE PROCESS OF DEVELOPMENT**

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Figure 10.2 shows the process of new product development in the form of a flow chart. As is evident, the process of development starts with the *idea generation* stage followed by *idea screening*, *concept development and testing* to *marketing strategy development* and finally to *product development*. Let us look at these processes.



**Figure 10.2: The process of new product development**

### 1) *Idea Generation*

The process of new product development starts with the search for new ideas. The common sources of new product ideas being:

- Customer expectation
- Estimating market demand through market research
- Competitors
- Research journals and magazines

- Seminars and conferences
- Research and development scientists
- Media
- Top management

Idea generation is a stage characterized by creativity. It not only involves getting the product idea but also the concept development and product image should be hypothesized.

After the idea is generated, we move on to the *idea screening process*. Let us see what this process involves.

#### 2) *Idea Screening*

Idea screening involves the acceptance of formulation of the idea by doing cause and effect analysis. This stage usually identifies the success and failure factors in different product ideas. It requires strong decision making and usually involves the top authority. After the idea is screened, the concept is developed and tested.

#### 3) *Concept Development and Testing*

A *concept* is an elaborated version of the product idea. The concepts are developed to the extent of the new product satisfying consumer needs, the price strategy involved for positioning of the product in the market, purchase intentions at a given price level and so on. This exercise of concept building helps to face and understand the situations better and is a proactive approach.

#### 4) *Market Strategy Development*

Market strategy development would require the study of the markets for potential consumers. It would also involve the study of the market for existing products and their moving sale volume, product positioning and identifying the test markets.

Next is the *feasibility analysis*.

#### 5) *Feasibility Analysis*

Once the product concepts have been formed, the feasibility studies are conducted. This study involves the following:

- 1) Estimation of demand in the target market at different price levels.
- 2) Forecasting sales based on demand estimation and competitive analysis.
- 3) Cost benefit analysis.
- 4) Calculation of the break-even point and sales volume.

Once the product concept seems feasible, the firm now takes the concept to the next stage of *product development*.

#### 6) *Product development*

The product development involves various stages of development. The stages being:

- a) Studying the ingredient characteristics
- b) Technique standardization
- c) Variations
- d) Product standardization
- e) Product development
- f) Sensory evaluation/consumer acceptance
- g) Product modification
- h) Final product

The development of the product involves vigorous functional and consumer tests. *Functional tests* are performed under laboratory and field situations to test the

product feasibility. *Consumer testing* involves various sensory evaluation tests to study consumer acceptance.

### 7) *Market Testing and Commercialization*

The new products are tested in the markets on four parameters: *trial, first purchase, adoption, frequency* and *volume*. This test marketing can be done on the pilot or small scale level. Once the test marketing is completed and the firm has favourable results, it is then ready to commercialize the product. The process of commercialization includes timings, place and strategy for marketing and distribution.

Product positioning in the market can determine the success or failure of products.

We have reviewed the various process involved in the new product development in our discussion above. You will find this information useful when you get down to developing a product.

Finally, let us study about the future trends.

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## 10.6 FUTURE TRENDS

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There are many major aspects that will sway the future trends in the development of new products. In the new millennium predominant factors would be continuous growth in productivity at farm, as well as, processor level, competitiveness and economic survival, consumer needs and conveniences, socioeconomic changes, buying power and continued evolution of market tasks.

Future technologies have to be based on promptness, cost, easy methodology and efficiency. It requires use of both innovative approach and operational approach. What are these approaches? Let's find out.

### *Innovative approach*

This would involve lot of research and development to come up with newer ideas and technology.

### *Operational approach*

It has been defined as *the application of scientific methods, technology and tools to operation of system with optimum solution to the problem*. It is based on identification of objectives, constraints or bottlenecks, controllable and uncontrollable factors and the role of authority entrusted with power of decision making.

The future trends emphasize on nutrition, freshness and convenience and thus these need to be addressed in the design of innovative products. This change in scenario for product development has moved organizations and companies involved in formulating foods for health benefits into new areas of understanding like health risk, risk, benefits analysis, evaluation of efficiency and toxicity and health regulation.

A number of different terms have been used to describe the many natural products currently being developed for health benefits. These include *nutraceuticals, functional foods, pharma foods, designer foods, vita foods, phytochemicals* etc. What are functional foods? Do you recall studying about them in sub-section 14.5.1 in the Unit 14 in the theory booklet (MFN-008)? We suggest you look up the section now.

*Functional foods* are similar in appearance to conventional foods and are consumed as a part of the usual diet but have demonstrated physiological benefits and thus reduce the risk of chronic diseases beyond basic nutritional function.

A *nutraceutical* is a product produced from foods but sold in the form of pills, powders and other medicinal forms and has demonstrated to have a physiological benefit or provide protection against chronic diseases.

The close alliance of nutritional knowledge and the delivery of promised benefits in food products offer an unparalleled opportunity to developing a product mix that is basis of good health. The most emphatic trend in new product development in the last decade has been in the area of special dietary products. Current trends indicate the development of sports of performance drinks, nutritionally enriched beverages such as vitamin fortified drinks, fruit juices, juices added with proteins and even herbal extracts.

In India, *traditional products* will continue to influence demand in the future. These food products have an established market. Consumers demand better quality of packaged traditional products with longer shelf life. The rich Indian traditional knowledge base is an asset, in fact an intellectual property, which needs to be preserved and shared to benefit of human kind.

In India, much of the traditional knowledge is documented in 'Wealth of India' published by Council of Scientific and Industrial Research, the initiative has already been taken by Government towards creating a functional Traditional Knowledge Digital Library (TKPL) a traditional medicinal plants and systems, which would provide updated information on medicinal and therapeutic properties through computer. The TKPL is expected to lead the Traditional Knowledge Resource Classification (TKRC) system, which would be linked, to the International Patent Classification (IPC) system. This would help to bridge the gap between ancient knowledge and modern technology.

The development of products to confer a health benefit is a relatively new brand and recognizes the growing acceptance of the role of diet in disease prevention and treatment. Thus, the new product concept that would appeal to new age consumers seeking health benefits from production, would also pave the way for future research and development and technology development endeavours.

With this, we end our discussion on product development. We hope this information will guide you in carrying out the two activities included in this practical. So get started.

# CONDUCT THE MARKET RESEARCH FOR VARIOUS NEW PRODUCTS AVAILABLE

**Aim:** To conduct the market research for various new products available.

Date: .....

## Objectives

After undertaking this activity, you will be able to:

- recognize the various products available in the market,
- assess the consumer demand,
- identify the ingredients and the novel techniques involved in product development,
- appreciate the packaging and labeling requirements of different products,
- acquire knowledge about the shelf life of the product, and
- categorize the products into different areas.

## Market Research

Market research is an exhaustive process and serves as a guide to familiarize one with the data collection methods, research methodology and forecasting techniques. Market analysis covers various aspects related to market and products such as market size, market growth, market segments, products available, product demand, technology used, product life cycle and cost dynamics. In organizations, market research is an integral part of the product development. Only after conducting market research, the organizations plan their strategies for product formulation and marketing. Market survey or research is the only way by which companies can study consumers and their behaviour. The market research of any organization may address the following questions:

What kind of product they are planning to put out?

Which market segment they actually target?

What is the market potential of the product or service?

Who are the competitors?

What are the market strategies of the competitors?

What are the customer expectations?

How to project new product or service more attractive for the customer by means of value addition?

This activity has been designed with a view to give you an idea about the markets, various products available, the brands available, consumer reactions and expectations, the target customer, the cost factor involved, the packaging and labeling requirements of the products.

## Methodology

Conduct a survey for various products available in the markets.

Categorize the product according to:

- 1) Technologies involved, like frozen products, dehydrated products, products involving high concentration of sugars or salt, canned products, thermally treated products, products having preservatives or products with combined techniques.
- 2) Groups the products according to food groups, like milk and milk products, cereals and cereal products, fruits, vegetable products, fats and oils, sugars, meat and meat products.
- 3) Purpose they serve, example, ready-to-eat products, functional foods, convenience products, ready- to- serve products, pre-processed or semi-processed products.
- 4) Consumption pattern as breakfast preparations, meal preparation, snacks, desserts, accompaniments and beverages.

After the categorization of the products, the following information should be noted:

- Name of the product
- Technology involved
- List of ingredients
- Brands available
- Packaging
- Label and information on the label
- Shelf life of the product

**Results and Observations**

Report the information collected in the format given on page 165.

**Conclusions and Inference**

Number of products surveyed .....

Products listed in the following categories

.....  
.....  
.....  
.....  
.....  
.....

Product information available

**Conclusions**

(Comment on the new products available in the market)

.....  
.....  
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.....  
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**Submit the activity for evaluation**

.....  
**Counsellor Signature**



# ACTIVITY

## 2

### DEVELOPMENT OF A NEW PRODUCT

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Date: .....

**Aim:** To develop a new product from the given product ingredient.

#### **Objectives**

After undertaking this activity, you will be able to:

- explore new ideas for product development,
- understand the concept of development of a process,
- gain knowledge about a technique,
- determine the factors affecting the process of development,
- explain the concept of variations, and
- appreciate the packaging and labeling requirements of the product developed.

#### **Methodology**

The process of development of the product in laboratory would involve:

- 1) Study of the ingredient characteristics
- 2) Idea generation
- 3) Feasibility
- 4) Technique standardization
- 5) Variations
- 6) Product standardization
- 7) Product development
- 8) Sensory evaluation
- 9) Product modification
- 10) Final product
- 11) Label design and Packaging

#### ***Important considerations for the process of development***

The process of development would involve *exploration of various ideas* for example, if the product ingredient provided is *Soya*, one need to study the product characteristics first like it being a rich source of proteins and fat. And also that as it is having low moisture content it can be ground, or made in powdered form.

Thus, the product ideas can be of types:

Soya powder, or paste used in the formation of: Soya flakes

Soya papad

Soya biscuits

Soya granules can be used for:

Namkeen preparation

Or any other snack preparation (can be used as filling or in the base product)

Soya milk can be extracted and products such as shrikhand, sweets, paneer, butter can be prepared.

*However, it should be kept in mind that the given ingredient should be the basic or major ingredient in any product formulation.*

One should also see the kind of *infrastructure* available in the laboratory and use the techniques which can be easily standardized for example, if it is not possible to carry out the controlled fermentation process one should avoid doing so.

While doing *variations in the product formulation*, only one variation should be done at one time so as to attribute the results to a single factor. For example, if you are adding soya flour and channa flour to wheat flour at the same time, the resulting hardness or softness of the dough prepared could be because of any of these. Thus, to know the property of each you have to add one at a time and that to in different proportions.

*Standardization* of a method can be achieved by the use of standard weights and volume of ingredients. These standards for weights and volumes of different ingredients and dishes can be established by use of scales, slicing machines, measuring equipment, standard spoons, scoops and ladles designed to hold a measured amount of weight or volume of the food.

*Sensory evaluation* should be conducted at each stage of development so as to assess the acceptance of the product on the basis of *appearance, taste, texture, consistency* or *viscosity, mouthfeel* etc. Various tests for sensory evaluation can be made use of. These tests have already been described in Practical 6. Look them up once again.

*Packaging and labeling*: The final product should be properly packed and labeled and then only the assessment of shelf life should be carried out. The packaging of the product should be based on the product characteristics and the availability of the packaging material. Also, the study of packaging material of the similar products available in the market as carried out in activity 1 of this practical can be made use of for designing of the packet.

*Label* for the product should be carefully designed and should hold the following information:

- 1) Name of the product
- 2) Product ingredients in the right order
- 3) Vegetarian/non vegetarian mark
- 4) Total weight of the product
- 5) Nutritional information
- 6) Any specific use of the product
- 7) Product catering to any specific group of people
- 8) Observed shelf life
- 9) Storage conditions required
- 10) Directions for use, if any
- 11) Cost of the product

*Product cost*: Cost of the product would include:

- 1) Ingredient cost/food cost.
- 2) Cost of process like any blanching done, dehydration etc.
- 3) Labour cost generally taken as 10-15% of the food cost.
- 4) Overheads like any non food material used for processing, packaging and labeling cost.
- 5) Profits can vary from 15-50%.

Now, keeping the important considerations highlighted above in mind, get down to developing the new product.

To help you with this, we have included one example here of how to go about developing a new product. We have taken the example of “**Bajra Crunchies**”. Read the process given here carefully and then in the same manner develop your new product.

**Name of the product – Bajra Crunchies**

***Selection Criteria/ importance of selecting the product\****

Biscuits are one of the most common bakery products eaten all over the world. They are the most easily available ready-to-eat energy dense food for both rich and poor. Although liked by all ages, they are not very popular because of the empty calories they provide. Biscuits can be made more nutritious by using a varied ingredient mix which would add to its value. Thus, the present product is developed keeping in mind the health awareness among Indian consumers and their demand for a whole product, which is rich in fibre and other nutrients. Therefore, to increase the nutritive value of biscuits, Bajra and Wheat bran were added making them iron and fibre-rich.

***Basic recipe for Biscuit Preparation***

*Amount of Ingredients*

Refined Flour- 50 g , Butter- 25 g, Castor sugar- 30 g, Baking powder ¼ tsp

*Method of preparation*

- 1) Sieve the flour and baking powder together.
- 2) Cream butter and sugar together till light and fluffy.
- 3) Add flour to the above mixture and make the dough.
- 4) Roll out the dough on a floored board into ¼ inch thickness.
- 5) Cut into shapes and prick each biscuit with a fork.
- 6) Baked on greased baking tray in a moderately hot oven for 10-15 minutes or till golden brown in colour.
- 7) Remove and cool on a wire rack.

**Variations carried out**

S. No.	Variations	Observations	Sensory evaluation/ remarks
1.	<b>Technique variations</b>		
	No technique variation was carried out. The addition of ingredients did not require any pre processing.	.....	
2.	<b>Ingredient variations</b>		
	Biscuits were prepared using various ingredients as refined flour, bajra, wheat bran.		
	Weights (g)		
	Refined flour 30 25 20 15	The ingredient mix gave different result. It was observed that the biscuit prepared with even low weight of refined flour could be prepared and the dough prepared was smooth.	When the biscuits were evaluated on the sensory scale. It was observed that all the biscuits had golden brown colour and smooth texture. However, less of refined flour in the last variation and more of bran provided crunchier taste and thus was chosen for preparation.
	Bajra 20 15 20 20		
	Wheat bran 0 05 10 15		
	<b>Total weight 50 50 50 50</b>		

	As these high fibre biscuits would cater to a class of people who are health conscious, thus a low-fat and a low-sugar substitute was also tried out.		
2.	<b>Change in the amount of fat used</b>		
	Weight (g)		
	Refined flour 15 15 15 15	The biscuits prepared with less of fat say 10 g of butter were showing cracks during the process of rolling.	When evaluated on the sensory scale, it was observed that all the variations had a pleasant flavour but the 4 <sup>th</sup> variation showed less brown colour formation during the process of baking. Even when tasted, these biscuits were very hard.  The 3 <sup>rd</sup> variation had less fat was also liked on the sensory scale and thus was selected for further development.
	Bajra 20 20 20 20		
	Wheat Bran 15 15 15 15		
	<b>Butter 25 20 15 10</b>		
	Castor sugar 30 30 30 30		
	Baking powder ¼ ¼ ¼ ¼		
3.	<b>Change in the proportion of sugar used for preparation of biscuit</b>		
	Here, in this ingredient variation we not only lowered down the amount of sugar but also added a pinch of salt to improve the flavour and taste of sugar		
	Weight (g)		
	R. flour 15 15 15 15	The dough prepared from each variation was smooth for preparation of biscuits.	When sensory evaluated even a smaller proportion of sugar say 10 g was giving appropriate sweetness in the high fibre biscuits. Thus this preparation was used for final product prepared.
	Bajra 20 20 20 20		
	Wheat bran 15 15 15 15		
	Butter 15 15 15 15		
	Castor sugar 30 25 15 10		
	Salt a pinch		
	Baking Powder ¼ ¼ ¼ ¼		

*Note: The sensory evaluation is to be done in terms of appearance, colour, flavour, texture etc.*

***Standardized recipe***

The ingredient mix for the final product (70 g) standardized was:

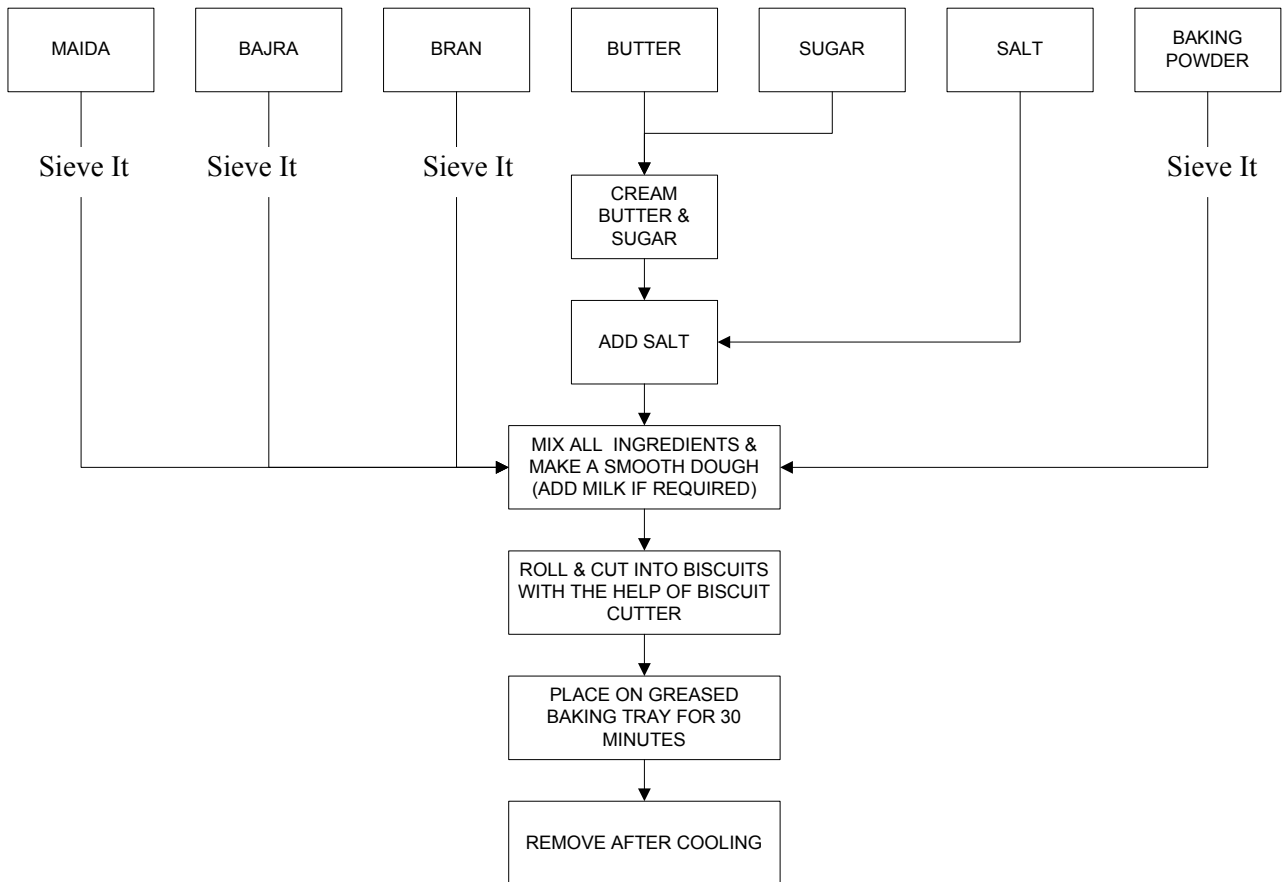
- Refined flour : 15 g
- Bajra : 20 g
- Wheat bran: 15 g
- Butter : 15 g
- Castor sugar: 10 g
- Salt: a pinch
- Baking powder: 1/4 tsp
- \*Milk : 5 ml

\*As the fat content was decreased, a little milk was added to make smooth dough.

The preparation of the product was carried out in the same manner as indicated in the basic recipe.

**Process flow of the prepared product**

Ingredients used are: Maida, Bajra, Bran, Butter, Sugar, Salt and Baking Powder  
The process flow chart for developing the bajra crunchies is given herewith:



**Cost Calculation**

Food cost = Rs. 4.03

Ingredients used and their costing:

S.No.	Ingredients	Cost/ kg (Rs)	Amounts used	Cost in product (75 g) (Rs)
1.	Refined Flour	24	15	0.36
2.	Bajra	20	20	0.40
3.	Wheat Bran	20	15	0.30
4.	Butter	150	15	2.25
5.	Castor sugar	22	10	0.22
6.	Salt		A pinch	0.1
7.	Baking powder	160	¼ tsp	0.25
8.	Milk	15	10 ml	0.15

**Total cost = 4.03**

Cost of process like baking =15% of food cost = Rs.0.60

\*Labour cost (self etc.) = 20% of food cost = Rs. 0.81

Overheads cost (Packaging, space, equipment etc) = 20% of food cost  
= Rs. 0.81

Profits =15% of food cost = Rs.0.60

*Total cost for 75 g biscuits would be* = Rs.(4.03+ 0.60+ 0.81+ 0.81+ 0.60)  
= Rs. 6.85 ≈ Rs. 7.00

\*Here, we have 20% labour cost as the product is involving more of the manual work. However, in industries all the cost go down because of the machinery used and bulk production. Thus, they have more profit margins.

***Nutritive value for 75 g pack of biscuit is as follows:***

<b>Ingredients</b>	<b>Amt. (g)</b>	<b>Energy (Kcal)</b>	<b>Proteins (g)</b>	<b>CHO (g)</b>	<b>Fat (g)</b>	<b>Fibre (g)</b>	<b>Iron (mg)</b>	<b>Calcium (mg)</b>
Refined flour	15	52	1.65	11	0.1	0.04	0.4	3.45
Bajra	20	72	2.39	13.5	1.0	0.24	1.6	8.4
Wheat bran	15	----	---	---	----	15	----	2.25
Butter	15	73	---	---	8.1	---	---	---
Sugar	10	40	---	10	--	---	---	---
Milk	10	1	----	---	0.1	---	---	2.1
<b>Total</b>		<b>238</b>	<b>4.0</b>	<b>34.5</b>	<b>9.3</b>	<b>15.3</b>	<b>2.0</b>	<b>16.20</b>

***Packaging and labeling of the product***

Packaging of biscuits involves both the primary and secondary packets. These primary package should be laminated paper which should have wax paper (oil-proof ) and moisture-proof paper, so that there is no absorption of moisture from the atmosphere which will make the biscuits soggy i.e they tend to loose their crispness. The secondary packing is normally used to further protect the biscuits from moisture absorption, breakdown etc. It is also used as a print media for all the labeling information required.

***Labeling***

The labeling of the pack should include the following:

- Green dot indicating the Vegetarian mark.
- List of ingredients in the proportion of use as for this pack these would be: bajra, refined flour, wheat bran, butter, sugar, milk and baking powder.
- Weight of the product= 75 g.
- Cost of the product which is the MRP= Rs. 7.00.
- Nutritional information per 75 g : as indicated in the table above.
- Date of manufacturing.
- Shelf life or best before say 6 months after the date of manufacturing.
- The product can have its own brand name or logo such as **Bajra crunchies: a natural way to good health.**

Now, as you are familiar with the steps of product development, let us start with the activity 2. Fill in the information or observations in the format given herewith ( you can refer to the above listed example)

## ACTIVITY

### 2

## DEVELOPMENT OF NEW PRODUCT

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Date: .....

*Name of the product* -----

***Selection Criteria/ importance of selecting the product*** Comment on the importance/relevance/nutritive value/cost effectiveness/ convenience of the selected products any basic recipe/technique used for development

**Process flow of the prepared product** (give the flow chart of the steps involved)



**Standardized recipe**

(write the recipe including the ingredients used )

**Cost calculation**

*Food cost* =

**Ingredients used:**

S.No.	Ingredients	Cost/ kg (Rs)	Amounts used	Cost in product (Rs)

**Total cost =**

Cost of process like any blanching done, dehydration etc. =

Labour cost (**self etc.**) =

Overheads cost (mention the items included) =

Profits =

**Total cost/** ..... g =

**Nutritive value of the product per** ..... g

Ingredients	Amt. (g)	Energy (Kcal)	Proteins (g)	CHO (g)	Fat (g)			

**Total**

**Photographs of the stages of product development/ final product**

**Inference and Conclusions**

(please remark on the sensory evaluation of the final product conducted)

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**Submit the activity for evaluation.**

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**Counsellor Signature**