

# FOOD LABELING & MARKETING PROVISIONS FOR FORTIFIED & BIOFORTIFIED FOODS IN PAKISTAN

**A GUIDE FOR PRODUCERS AND PROCESSORS FOR MARKETING OF ZINC ENRICHED FOOD**



## ENDORSEMENT

Zinc deficiency is long-standing and among the key factors contributing towards the existing severe malnutrition in Pakistan. It is widespread in women and children with serious consequences for their health. The Government of Pakistan is committed to reduce the current levels of malnutrition in the country which requires multi-sectoral and consolidated efforts. The Ministry of National Health Services, Regulations and Coordination (MoNHSR&C), through National Fortification Alliance and Nutrition Wing is playing a key role in mainstreaming nutrition interventions, including food fortification and bio-fortification. It is indeed encouraging to note that with the support of HarvestPlus, the bio-fortification of wheat with Zinc has made significant progress in the country. The certified seed production is increasing exponentially and a large number of farmers are now growing Bio-fortified Zinc Wheat varieties in the country. I am pleased to see that the commercialization of bio-fortified crops (CBC) program studied the current regulatory frameworks and developed food industry guidelines for the marketing of zinc wheat grain, flour, and other food products. The launch of an E-Book for producers and processors for the marketing of zinc-enriched food is another step toward mainstreaming zinc in our food system. The guidance provided in this E-book will make it easier for the businesses to adopt zinc wheat seeds, grains, and foods produced from zinc biofortified flour into their businesses. I encourage all businesses and other stakeholders to read this guidebook and prioritize trade in zinc wheat and foods. On behalf of the Ministry of National Health Services, Regulations and Coordination and National Fortification Alliance Pakistan, I offer my support for the scale up and commercialization of zinc wheat and foods and urge relevant regulatory authorities in the country to adopt these standards in their regulatory framework where appropriate.



**Dr. Baseer Khan Achackzai**  
Director Nutrition and Regulations  
Secretary National Fortification Alliance  
Ministry of National Health Services, Regulations and Coordination



## INTRODUCTION

Food labeling is pertinent for the consumer's education regarding ingredient quality, nutrition information, and following regulatory compliance. Zinc enriched staple crops are developed through conventional breeding practices. The grains and ingredients can be used readily, providing these comply with general food legislation and standard food labeling requirements. It is imperative to justify the nutrition and health claims based on scientific and physical laboratory results endorsed by the regulatory authorities. Pakistan National and Provincial Wheat Improvement Programs have released three Zinc wheat varieties: Zincol-2016, Akbar 2019, and Nawab-2021, in partnership with the (CIMMYT) and Pakistan's National Agricultural Research System. These Zinc enriched wheat varieties are now available for marketing. HarvestPlus is part of the CGIAR and leads the global agency's Biofortification work. Commercialization of Zinc enriched wheat will help combat malnutrition in Pakistan in collaboration with the government and national and international organizations.

## OBJECTIVES OF THE E-BOOK

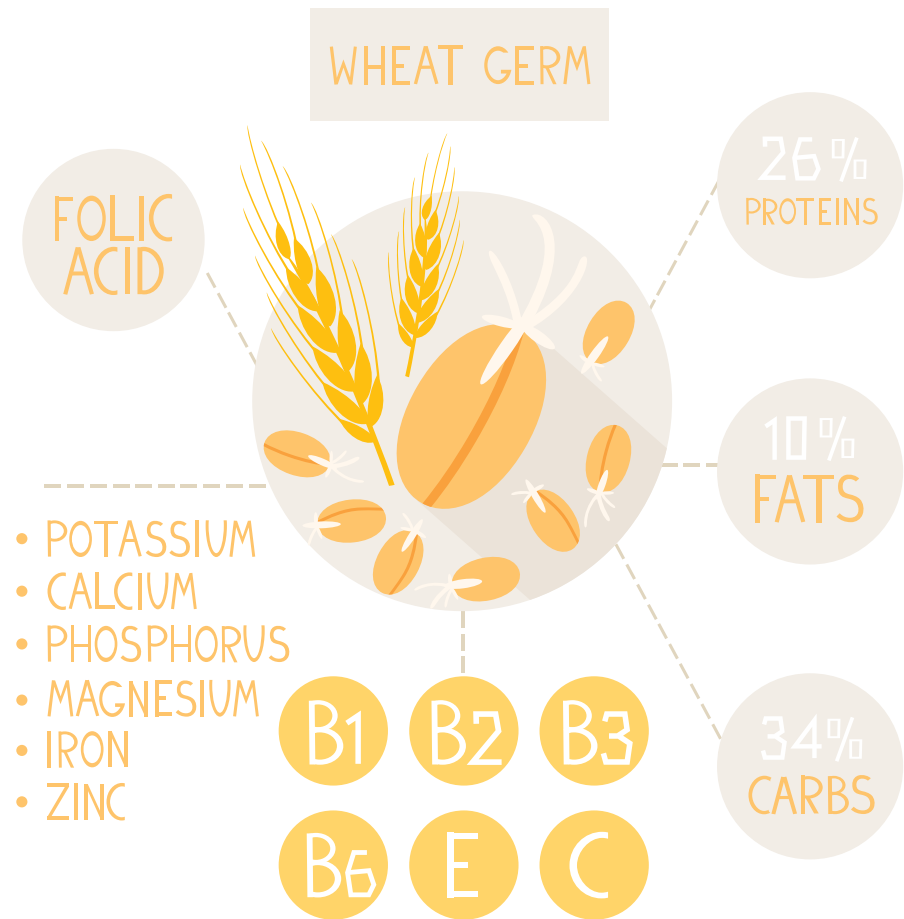
1. To enhance the knowledge and skills of the producers and processors in food packaging and labeling.
2. As an information guide for those who want to process, package Zinc enriched foods.
3. To enhance compliance to national guidelines of businesses that sell and process Zinc wheat processed foods.
4. To enhance the growth of Zinc wheat businesses in Pakistan by advancing product marketing, with truthful labelling practices.



## WHY ZINC ENRICHED FOOD?

Hunger and zinc (Zn) malnutrition are major health risk factors in developing countries. Wheat is a staple food in Pakistan, but it is inherently low in Zn concentration, mainly when grown on Zn deficit calcareous soils. Therefore, producing Zn enriched wheat grains in the farmers' fields is the best solution against human Zn deficiency. The approach has multiple advantages when utilized as a part of an integrated food systems strategy to reduce malnutrition.

Developing Zinc enriched crops is a one-time investment, so recurrent costs are low, and the global coverage of staple crops such as maize and wheat provides a meaningful return on investments. Pakistan dietary guidelines provide valuable information concerning requirement of essential minerals in people's daily diets.



## HOW TO ACHIEVE GOOD QUALITY GRAINS?

As Pakistan moves toward a new era in grain production, storage, and handling, grain producers and storage managers will need new skills and knowledge to deal with the challenges. Cereal Grains are most vulnerable to damage while they are in the field awaiting harvest or collection. Insect infestation and spoilage caused by molds are the two major problems that a storage manager must deal with year-round. Grain is a living organism; therefore, it requires careful handling. There are Physical, Biological, Chemical, and Technical factors affecting the stability of grains. The Zinc Wheat stocks should be stacked and stored separately from the other conventional varieties for better classification and identification during marketing. In addition, grain inspection, housekeeping, and sanitation are the best grain handling and storage practices.

### PRINCIPLE OF SAFE STORAGE

#### ➤ KEEP THE GRAIN



DRY



COOL



CLEAN



# GRAIN PRESERVATION UNDER VARIOUS STORAGE SYSTEMS IN PAKISTAN

The storage of wheat, rice, pulses, and oilseed crops after harvest are essential due to their food value. There are more than seven types of grain storage systems in Pakistan, and it's highly challenging to manage grain preservation under various types of storage with a variety of grains. Some hazards occur due to poor storage facilities, thus causing qualitative and quantitative losses. However, following the best storage practices is the key to help in reducing postharvest grain losses.



House Type



Bag Storage



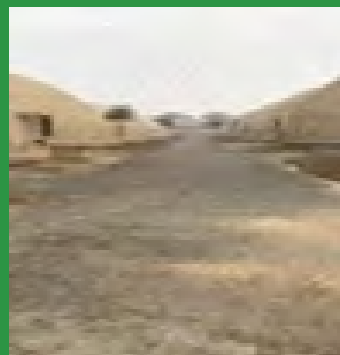
Open Storage



Hermetic Bags



Open Bulkhead



Binishells



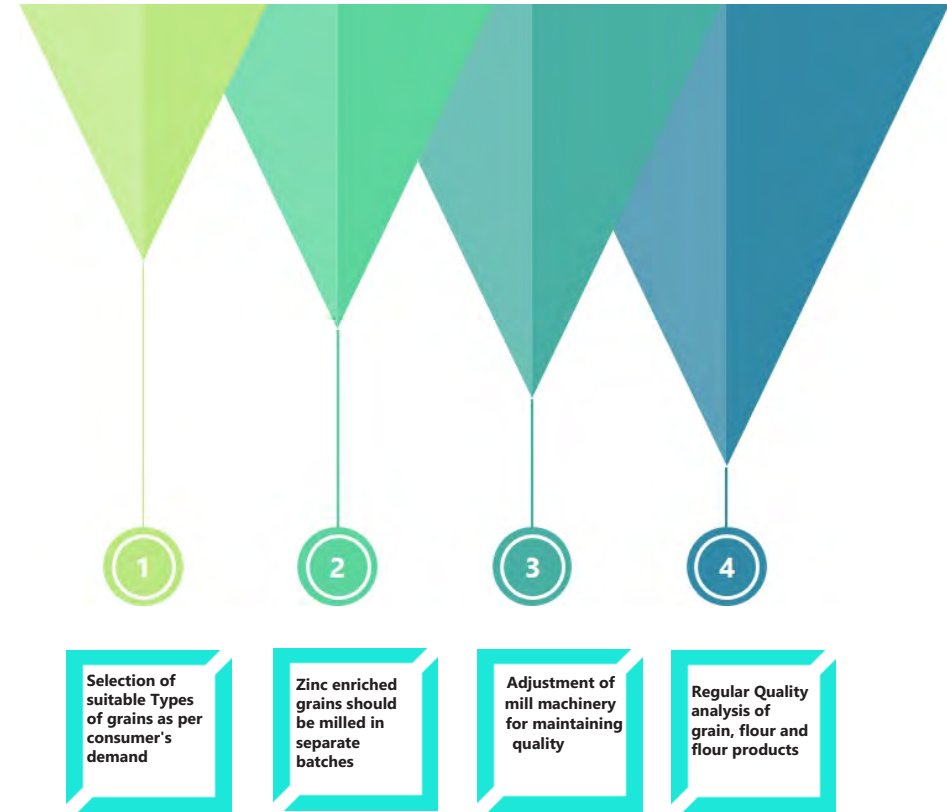
Hexagonal Bins



Steel Silos

## ZINC ENRICHED WHEAT FLOUR MILLING AND MARKETING

The flour milling industry is a significant part of the grain sector. The flour mills can contribute immensely to upscaling of nutritious flour and flour products. The most critical aspect of flour milling is providing consistent quality flour to the end-users. A relatively clean, sanitary production environment will allow the production of a flour lower in microbial contamination. Adding vitamins and mineral improvers can dramatically enhance consumers' and our nation's health, vitality, and learning ability. The followings are the critical steps for producing good quality flour for better health and better business.



## NATURALLY ZINC ENRICHED FOOD

Zinc enriched foods are processed with the staple grains coming from the farmer's fields without adding any ingredients artificially. The staple grains of Zn varieties inherently possess a higher Zinc quantity to make them prominent in the food market.

Therefore, food fact labels must carry the nutritional information on the foods presented by the processors for the education and choice of the people.

The nutrition claims such as Zinc Enriched Food on the label must correspond with the actual values present in the product. The Nutrition facts must be mentioned on the pack with the protected design, registered mark, and approved format as per local regulations.





## WHY LABEL ZINC ENRICHED FOOD PRODUCTS?

- Inform consumers about the advantages of the products
- Provide information about the nutrition values of the products
- Raise awareness of the importance of a healthy diet

## HOW TO LABEL ZINC WHEAT FOOD PRODUCTS?

- It is prohibited for any person or group of persons to sell or advertise any food that does not correspond with the actual quality of the certain product made of zinc wheat.
- The product needs to be tested and analyzed through the accredited laboratory and product results needs to be endorsed by the concerned regulatory authority.
- In some cases, the label should carry the voluntary information for the guidance and education of the consumers.



## IMPORTANCE OF FOOD FACTS LABELS

The Pakistan Dietary Guidelines for Better Nutrition 2019 describes the information printed on the packages by food manufacturers should include; the name and total amount of foods and their ingredients, nutritional value, the percentage of daily nutrients references on food packs.

The food industry in the developed countries is more particular about labeling and packaging as a marketing tool for consumers' education to seek their trust and confidence. The Nutrition Facts label on food items can help consumers make healthier choices. Such labels provide the number of calories, carbs, fat, fiber, protein, and vitamins per serving of the food, making it easier to compare the nutrition of similar products.



NUTRITIONAL INFORMATION			
Per 100g		Per serving (approx. 25g or 1 Piece)	
Energy	1515 KJ/362 Kcal	Energy	379 KJ/ 91 Kcal
Fat	2.5	Fat	0.63 g
of which:		of which:	
Saturated	0.5 g	Saturated	0.13 g
Monounsaturated	0.5 g	Monounsaturated	0.13 g
Polysaturated	1.5 g	Polysaturated	0.38 g
Carbohydrates	75 g	Carbohydrates	19 g
of which:		of which:	
Sugars	0.5 g	Sugars	0.13 g
Starch	74.5 g	Starch	19 g
Fiber	2 g	Fiber	0.5 g
Protein	11 g	Protein	3 g
Salt	32 mg	Salt	8 mg
Calcium	2 mg	Calcium	0.5 mg
Iron	3.3 mg	Iron	0.83 mg
Potassium	0.3 mg	Potassium	0.08 mg
Zinc	3.7 mg	Zinc	0.93 mg

## FOOD PRODUCT PACKAGING

The food containing Zinc, Vitamin A, Folic Acid, and other nutrients should be packed and distributed in the appropriate material to safeguard the products' hygienic, nutritional, and other qualities. The packaging material shall be made of substances, which are safe and suitable for their intended use. The British Standards Institution, BSI, has published over 800 standards relevant to the food and drink industry covering food safety, microbiological and sensory analysis, packaging and process issues, supply chain, and many general quality management areas.

According to the Punjab Food Authority (PFA), Packaging material regulations, 2018, have decided to eliminate the use of all non-food grade materials from food packaging.



# PRODUCT LABEL COMPLIANCE

**LEGAL FRAMEWORK  
NATIONAL /INTERNATINAL**

**STATUTORY AND REGULATORY REQUIREMENTS  
E.G QUID, ALLERGIES, FORTIFICATION  
DECLARATIONS, HEALTH CLAIMS WEIGHTS**

**LABELS AS MARKETING TOOL**

**ORGANIZATIONS MARKETING, MIX  
PACKAGING PRINTER, CAPABILITY**

**VOLUNTARY INFO**

**CONSUMER AND OTHER STAKEHOLDER  
CONSIDERATIONS  
LANGUAGE, PICTORIAL, AND USAGE  
SUGGESTIONS**

**FAO Handbook 2016 quoting CODEX STAN 1-1985);**

**A food label is the information found on the food products seen by the consumer,  
the ordinary person**

**FAO hand book on food Labeling 2016,12....**

**food labels informs consumers about benefits of consuming foods which are particularly  
nutrition and contribute to a healthy diet**

## NUTRITIONAL INFORMATION

The nutrition and health claims need to be declared adequately for any prepackaged food. The Nutrition Claims for Zinc enriched food and any additional nutrients should be based on scientific evidence.

The nutritional information or nutritional facts per 100 grams or per serving should be given on the product's label. The label should contain the amount of any other nutrient for which a nutrition claim is made.

The numerical information on vitamins should be expressed in metric units.

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## MANUFACTURER AND DISTRIBUTOR;

The name and address of the manufacturer, packer, re-packer, distributor, importer, exporter, or vendor should be declared on the label. Where the product is imported, the name and address of the manufacturer and certification of the registration holder should be declared on the product label. Where a manufacturer has a plant in many cities, and or/or towns the corporate head office address would suffice provided every food package has a code/mark to identify the processing plant where it is manufactured.

## NET CONTENTS

1. Solid food/by weight and number or count
2. Semi-solid food by weight
3. For multi-unit retail packages, a statement of the number of contents on the outside package shall include the number of the individual units, the content of each unit, and the total quantity of the multi-unit



## **LABELING:**

Prepacked food fortified with vitamin A and Zinc or additional mineral or nutrients shall be labeled following the pre-packaged food regulations.

### **NAME OF THE FOOD**

The specific name of the packaged food enriched with Zn or other nutrients should be presented in the Principal Display Panel (PDP) of the label and should indicate the true nature of the food.

### **TRADEMARK:**

Where a pre-packaged Zn enriched food has a trademark displayed on the label, the trademark should not be given a wrong impression of the nature, quality, or substance of the food item.

### **NET CONTENTS - PRE PACKED FOODS**

The average net contents of Zn enriched prepacked food items should be declared in the metric system or international system of units.



## LIST OF ADDITIONAL INGREDIENTS

Except for single-ingredient foods such as 100% Zn and Vitamin enriched products, a list of ingredients should be declared on the label of pre-packed food.

Use the term ingredients for any additional ingredient if duly evident through the accredited scientific lab testing.

Codex standards are established standards for percentage and claim of nutrients.

The amounts of vitamin and/or mineral nutrients added on the specific quantity of the food shall be declared in the metric system of measurement on the product with labels and barcodes.







## CLEAR, PROMINENT STATEMENTS

Any statement required to appear on the label of Zinc Enriched Foods or fortified food should be clear, prominent, and legible to the consumer and be of contrasting color to that of the background. The statement of the identity of the product should be presented in bold type on the principal display and should be prominent printed matter on such panel.

## DATE MARKING

The day, month, and year should be specified and legibly displayed on the label for any prepacked food. When food must be consumed before a specific date to ensure its safety and quality, the "Use-by date" or Expiration date and best before a certain date. Use by DD/MM/YY

- **Storage Condition;**  
The required storage condition should be specified on the label.
- **Batch Number;**  
The batch number should be indicated on the label of Zn enriched prepacked food products.
- **Registration Number**  
Zn Enriched pre-packaged food should have the food business registration number issued by the relevant food regulatory authority.

## **FORTIFIED FLOUR PACKING**

### **PER PSQCA Guidelines**

1. Flour (Aata) packing shall be done in 5,10, 20, 40 Kg, or any other pack size acceptable to the purchaser and vendor.
2. The packing material shall be food-grade cotton, jute, polypropylene, or any other suitable material agreed between the purchaser and vendor.
3. The packing will be sealed or stitched properly to avoid any contamination, loss of Aata from the packing, or any infestation.

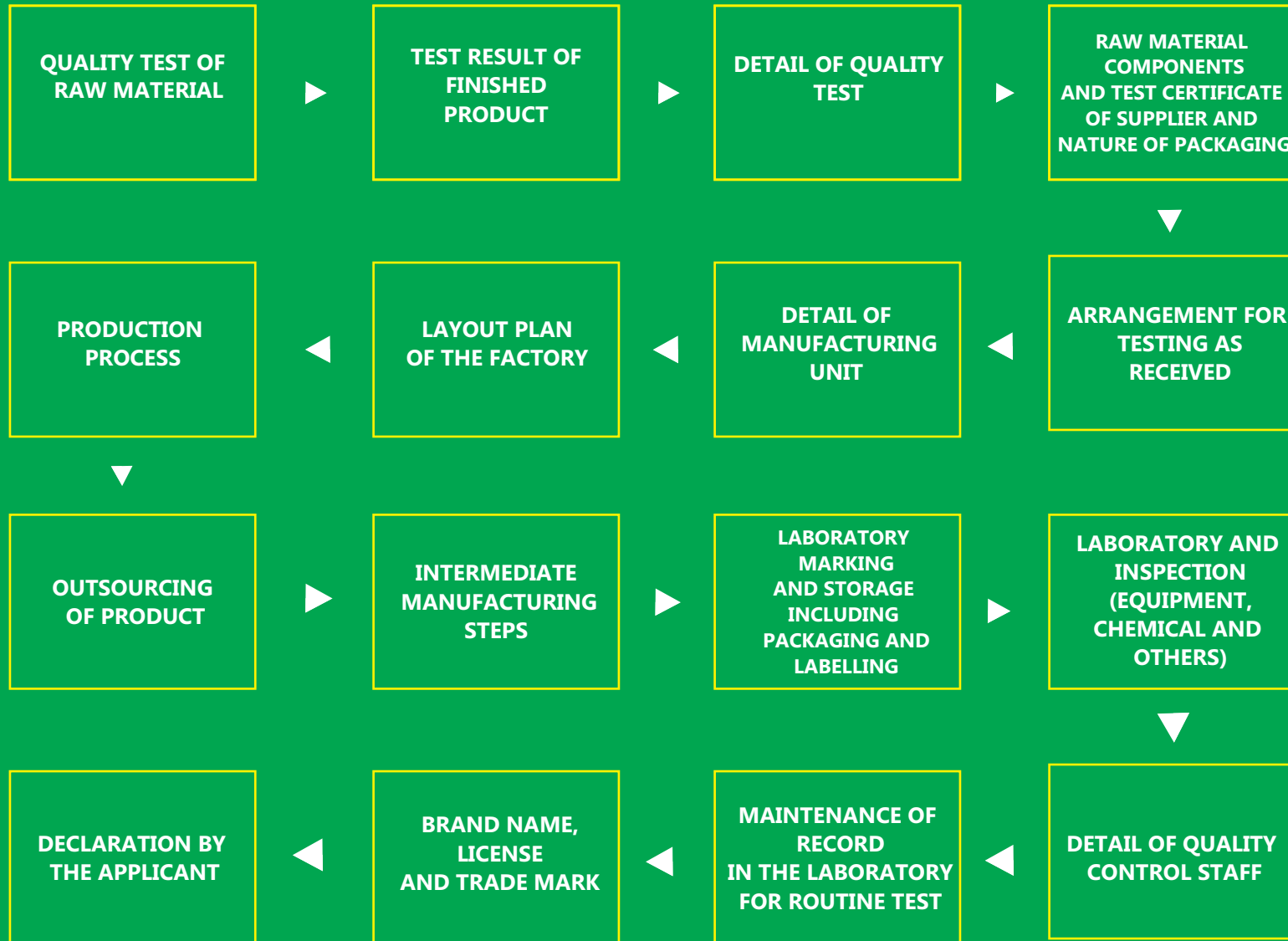
### **MARKING**

Each Atta bag shall be clearly marked in such a manner that the dye or ink does not penetrate into the material. Each bag shall be suitably marked so as to give the following information.



- a) Name of the product, i.e., Fortified Wheat Flour (Atta)
- b) Name and address of the Miller / Manufacturer.
- c) List of ingredients/ additives
- d) Trade Mark
- e) Average net weight
- f) Batch and Code Number
- g) Date of manufacture and expiry
- h) PS: Mark and License Number
- i) Logo of Fortified Wheat Flour (Aata).

## PRODUCT CERTIFICATION PROCESS - REFERENCE PSQCA



## MANDATORY REQUIREMENT FOR FORTIFIED WHEAT FLOUR (AATA) - (Clause 2.4)

Sr. #	Characteristics	Requirements	Method of Test Reference to PS
1.	Moisture, percent by mass, max.	13.5	*Appendix B of PS:380
2.	Total ash (on dry basis), percent by mass, -----Max	2.0	*Appendix C of PS:380
3.	Acid insoluble ash (on dry basis), percent by mass, Max	0.1	*Appendix D of PS:380
4.	Gluten (on dry basis), percent by mass, Min	8.0	*Appendix E of PS:380
5.	Total protein (N x 6.25) (on dry basis), percent by mass, Min	8.0	
6.	Crude fiber (on dry basis), percent by mass, Min	2.0	*Appendix F of PS:380
7.	Total Aflatoxin in Wheat Flour shall not be exceeded	20 ppb	

Pakistan Standard Specification for Whole Meal Wheat Aata by PSQCA – Page #

### LEVEL OF MINERALS AND VITAMINS

1.	Folic acid	Not less than 1.0 ppm	Appendix B of this standard
2.	Iron (in the form of NaFeEDTA)	Not less than 15 ppm	Appendix C of this standard
3.	Zinc (in the form of Zinc oxide)	Not less than 30 ppm	
4.	Vitamin B <sub>12</sub>	Not less than 0.008 ppm	

## **LABELING AT SMALL MILLS "CHAKKIS" IN RURAL AND URBAN SETTINGS;**

There is no composite labeling in practice on the flour being processed and sold in the country produced by the small mills (Chakkis). The flour is being sold either in poly bags or jute bags in the retail and wholesale market. There is no marking used at most of the rural-based chakkis. However, Labeling and Packaging need to be encouraged in rural and urban settings. This campaign will help in fair and healthy business as well as consumers' education regarding the usefulness of the Zn enriched flour.



## DO'S AND DON'TS FOR LABELING ZINC ENRICHED FOOD

Do	Don't
Be Truthful	Oversell the Benefits
Talk about maintaining health	Talk about disease prevention or cures
Talk about being healthy and healthy diets	Scare the consumer
Use the commodity name	Use the word Biofortification to consumers
Use the term “natural source” of Zn Enriched Food	Make a nutrition or health claim if there is not enough Zn in the finished food to hit the percentage of the recommended daily amount
Talk about the benefits to the farmers for buying the product	
Make benefits applicable to the buyer;- Women, Children, teenagers, the elderly	
Use the word Zinc Enriched Wheat and wheat flour	

**Using Narratives**– Communication delivered in the form of a story, testimonial, or entertainment education. Entertainment education either face to-face or mediated is often used to promote Agricultural innovations. In such cases, resource Clinical demonstration of the nutrient composition of Zinc Enriched Food packaged and broadcast on television can be compelling in strategy to convince consumers. Zn enriched products over non-Zn enriched foods, packaged and broadcast on television can be compelling in strategy to convince consumers. This form of narrative is subject to the clarence of relevant regulatory authorities after establishing the scientific evidences regarding the nutritional and health claims.



## HEALTH CLAIMS

Health and nutrition claims should be based on current relevant scientific evidence and the level of proof must be sufficient to substantiate that type of claim and the relationship to health duly recognized by the local regulatory authorities.

No claims concerning medicinal (preventive, alleviative, or curative) effects should be made in respect of the properties of Zn enriched food packaging.



## Using a Logo

HarvestPlus have developed a logo that can be licensed for use in the marketing and promotion of food products and businesses. This logo does not constitute a health or nutrition claim. Please contact HarvestPlus

[j.walton@cgiar.org](mailto:j.walton@cgiar.org) if you would like to use this logo







**ZINC WHEAT  
FOR BETTER HEALTH  
BETTER BUSINESS**



