Perspective: A Definition for Whole-Grain Food Products—Recommendations from the Healthgrain Forum

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Published in:
Advances in Nutrition

Link to article, DOI:
10.3945/an.116.014001

Publication date:
2017

Document Version
Publisher's PDF, also known as Version of record

Link back to DTU Orbit

Citation (APA):
Supplemental Information 1: Questions and answers about the Whole Grain Food Definition

- What is the minimum amount of whole grain required for a product to be labelled as ‘whole grain’?
  - A product needs to be made with at least 30% whole-grain ingredients on a dry weight basis, including non-cereal component(s), and more whole-grain ingredients than refined grain ingredients.
    - This is to avoid whole-grain claims on products with a low overall proportion of components with a high whole grain content.
    - Examples:
      - Bread made with 35% whole-grain wheat flour and 60% refined wheat flour, and 5% other ingredients (dry weight basis) would not be able to be labelled ‘whole-grain bread’.
      - Bread made with 55% whole-grain wheat flour and 40% refined wheat flour (dry weight basis) and 5% other ingredients would be able to be labelled as ‘whole-grain bread’, and be able to carry the message ‘Made with 55% whole grain’.

- What definition of ‘whole grain’ should be used?
  - We recommend the use of the HEALTHGRAIN whole-grain definition, which allows for small losses of the bran during processing and recognises the widely used practice of reconstitution of milling streams to make whole-grain flour (1).

- How do you define ‘refined grain ingredients’?
  - Refined grain ingredients are the white flour from grains (i.e. the starchy endosperm).
  - Other non-whole-grain cereal components such as the bran or germ, or fractions of these should not be included in the calculation of either refined grain ingredients or whole-grain ingredients, but are included in the total grain component.

- Why dry weight?
  - Grain-based foods are often sold with a low moisture content (e.g. rice, pasta, rolled oats), but eaten with a high moisture content (e.g. cooked rice or pasta, or oat porridge). The use of dry weight allows for the whole grain content of dry foods such as breakfast cereal to be fairly compared with cooked or fresh foods such as porridge or bread.
  - Dry weight is the weight of the food with all water removed. Dry weight can be calculated based on standard values for moisture/water for each ingredient (e.g. local food composition tables), or by gravimetric determination of the actual dry weight after drying.
  - Should the dry matter calculation result in higher than 100% (e.g. for foods that are dried during processing), then the maximum amount that can be stated on pack is 100% whole grain.
  - Quantitative Ingredient Declaration (QUID), the standard for listing ingredients on the back of packaging, stipulates that ingredients be labelled based on the weight before cooking (e.g. flour) expressed as a percentage of the final weight of the product. This can lead to large differences for foods with a large change in water content during cooking (e.g. bread). Declaring whole grain content on this basis could lead to misleading comparisons.
between different foods which have the same amount of whole grain on a dry weight basis, but different amounts of water added or lost during processing. The whole-grain food definition is targeted at ‘front of pack’ labelling, so need not conflict or contradict ‘back of pack’ labelling based on QUID criteria.

- We acknowledge that this system would potentially lead to different reporting of whole grain amount between a front of pack whole-grain label, and a back of pack QUID-based ingredient label, and could lead to consumer misunderstanding.
  - Labelling whole grain on a dry weight basis has been used for many years in Sweden without any apparent consumer misunderstanding.
  - Many on-pack communications of nutrition are not easily deciphered or understood by consumers in a shop, yet remain an excellent way of intuitively communicating an aspect of a product – for example the Keyhole labelling in the Nordic countries and the proposed Traffic Light system in the United Kingdom.

- Why 30 % whole grain as a minimum for ‘whole-grain food’?
  - This definition must cover a broad range of products produced to very different recipes across many countries. In some countries, products with close to 100 % whole-grain ingredients have widespread acceptance and preference, whereas similar products would be seen to be niche health foods in other countries. A 30 % minimum allows scope for introducing whole grains in products aimed at the general public in many countries, and there is population-based evidence that this level of whole grain in foods will still reduce risk of disease. Additionally, foods with a relatively low amount of whole grains still contribute a high proportion of whole-grain intake in some countries (see main text).

- Why must there be more whole grain than refined grain ingredients in a whole-grain food?
  - We consider that it is misleading to consumers to label a food as ‘whole grain’ if it contains more refined grain ingredients, especially for those looking to reduce their intake of refined carbohydrates. The requirement to have more whole grains than refined grains (i.e. >50 % whole grain) is a part of the whole-grain definition in the United States for making whole-grain health claims (http://www.fda.gov/Food/IngredientsPackagingLabeling/LabelingNutrition/ucm073634.htm), and for use of the Danish ‘Choose Whole Grains First’ logo (http://www.fuldkorn.dk/media/171905/Fuldkorn_logomansal_godkendt_070_313.pdf). Many other public health recommendations for whole grain intake also include statements that people should eat more whole grains than refined grains, or choose whole grains in preference to refined grains. The requirement that there be more whole grain ingredients than refined grain ingredients ensures that the definition aligns with these recommendations.

- How does the definition work for foods that are not only based on cereals? Like pizza, sandwiches and ready meals?
  - If a product is made from ingredients from several food groups (e.g. pizza comprising of a dough base, and topped with tomato and cheese), the entire product must have at least 30 % whole-grain ingredients on a dry weight basis and more whole grain than refined grain, but for the purposes of labelling the whole grain content, only the grain-based part of the product is considered.
This aspect of the guidelines is only for those products composed of several food groups – e.g. this does not apply to bread, but does apply to a ready-made sandwich.

- The ≥ 30 % limit for the overall food is to ensure that products with only a small cereal component cannot claim ‘whole grain’ on their packaging based on a proportionally small amount of whole grain. Reporting the amount or percentage of whole grain is only based on the grain component as a consumer would not expect the overtly non-grain parts of a food to contribute to the overall amount of whole grain.

Examples:

- Pizza:
  - Overall, the pizza must have ≥ 30 % whole-grain ingredients on a dry weight basis (e.g. including flour, yeast, oil, tomato paste and cheese, but not any added water), and not more refined grains than whole-grains.
  - Only the dough is considered for the calculation of the percentage whole grain, and not the entire pizza as only the dough will be highlighted as being ‘whole grain’ (see next point).
  - Only the dough can be labelled ‘whole grain’.
    - ‘Whole-grain pizza’ would not be acceptable
    - ‘Pizza with whole-grain crust’ would be acceptable

- Ready meal made with whole-grain rice:
  - Overall, the meal must have ≥ 30 % whole-grain ingredients on a dry weight basis (e.g. including meat, vegetables, rice and sauce) and more whole-grain rice than white rice.
  - Only the rice is considered in the calculation of whole grain content, and not the other meal components.
  - For example, a ready meal that includes brown rice may use the statement ‘…and 100 % whole-grain rice’ in the description of the meal.

- Supplemental Table 1 gives several examples of how different foods could be labelled.

- What is the ‘grain component’?
  - The grain component is the part of the food that is mainly made from cereal ingredients or would be associated with cereals, as defined in Box 1. Pulses and seeds are not cereal grains and not included in this definition.
  - For example:
    - Bread: all of a loaf of bread would count as the ‘grain component’
    - Sandwich: The slice(s) of bread would count as the ‘grain component’, but not the topping/filling. A consumer could be expected to know that a whole-grain label would not apply to the topping/filling
    - Pizza: The pizza base would count as the ‘grain component’, including any added fat or other ingredients.
    - Pasta salad: The pasta used in the pasta salad would count as the ‘grain component’
  - The ingredients in the grain component include whole-grain flour, refined flour, bran and germ.
Milling fractions of cereals are acceptable as part of the grain component, but highly purified fractions are not.

Such purified fractions include isolated fibres from grain kernels, such as resistant starch from maize and resistant maltodextrin from wheat, and the cellulosic fibres isolated from wheat straw or from the husks of oats. These cellulosic fibres should not be called ‘wheat fibre’ or ‘oat fibre’ since they contain only cellulosic components and no or negligible amounts of other fibres (e.g. arabinoxylans and β-glucans) nor any of the phytochemicals that are commonly associated with dietary fibre of cereal grains (2).

- Why is there a connection between whether a food can be labelled whole grain, and the overall nutritional content of the food?
  - Intake of whole grains is encouraged to improve health, while public health authorities recommend cutting down on certain nutrients – e.g. sodium/salt, sugar and saturated fat intake. Therefore it is incongruous to label a product high in sodium/salt, sugar or saturated fat ‘whole grain’. In making a new definition it is crucial that the credibility behind whole grains and health is not undermined.
  - There are no universally accepted criteria for healthy foods at present, but there needs to be an unambiguous message that whole-grain labelling should not be used on foods that can be considered unhealthy.
  - Some foods which tend to be considered unhealthy can also be excellent vehicles for whole grain intake, and are undoubtedly improved nutritionally if they are formulated to contain whole grains rather than refined grains or other starch sources. In this case, national guidelines for healthy nutritional profiles in different product categories should be used.
  - If there are uncertainties about what constitutes a healthy nutrient profile, local regulations are always paramount.

- Can a product state ‘good-’ or ‘excellent source of whole grain’ if it is made with a high proportion of whole-grain ingredients?
  - We do not recommend this approach to labelling whole-grain content. In principle such ‘value’ statements about food are reserved for measurable nutrients that are essential for health (e.g. calcium, fibre, protein, vitamin D). All these compounds can be measured in a food after it has been prepared, and can be verified. This is not possible for whole grains.
  - European Union legislation on health claims explicitly states that such claims are for nutrients (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:012:0003:0018:EN:PDF) while the United States Food and Drug Administration specifically states that terms that imply a particular amount such as ‘excellent source’ or ‘high in’ are not allowed for labelling whole grain content (http://www.fda.gov/OHRMS/DOCKETS/98fr/06d-0066-gdl0001.pdf).
  - Factual statements on whole grain content (e.g. 51 %, 100 %, ‘made with x g of whole-grain flour) are encouraged.
  - Some groups suggest that phrases such as ‘good source of whole grains’ are acceptable (e.g. the USDA for school meals (http://www.fns.usda.gov/sites/default/files/WholeGrainResource.pdf), and the Grains and Legumes Nutrition Council, Australia; http://www.glnc.org.au/codeofpractice/whole-grain-ingredient-content-claims/), but at this stage we do not support such phrases for the reasons outlined above.
In the future if there is agreement on how to measure whole grains in a prepared food (i.e. independently of QUID), then value statements could be proposed in countries where increased consumption of whole grains is recommended as part of dietary guidelines. The disagreements about how to handle this type of labelling suggests that an unambiguous system based on the actual percentage whole-grain ingredients is the best strategy.

- Can I state ‘contains x % whole grain’ instead of ‘made with x % whole grain’?
  - We do not recommend this approach, though we realise that this distinction may be difficult in some languages.
  - ‘Made with’ is a statement about what is added into the mix to make a product, and as such whole grain can be measured and documented (e.g. 50.3 kg of whole-grain flour was added to the dough mix’).
  - ‘Contains’ refers to what is in the final product. As whole grain is not a measurable entity that can be independently analysed, compared with e.g. vitamin E or calcium, it is not appropriate to state ‘contains x % whole grain’.

- The limit for labelling whole grain in the Healthgrain Forum proposal is lower than that mandated by my national regulations. Which rules/guidelines should I follow?
  - You should always follow the national rules/guidelines.

- My product has at least 30 % whole grain on a dry weight basis. There are no national regulations regarding the labelling of whole-grain foods. Can I label the whole grain content based on the Healthgrain Forum whole-grain food definition?
  - The Healthgrain Forum whole-grain food definition is a good place to start if there are no regulations regarding the labelling of whole-grain foods in your country.
  - While it carries no legal weight, it has been developed by a wide consortium of scientists with the main aim of ensuring that consumers can easily choose whole-grain foods for a healthier diet.
  - The definition strongly supports communicating actual whole grain content on the front of packaging. The more whole grain you add to your product compared with your competitors, the easier it will be for consumers looking for whole grains to choose your product over others with less whole grain or no whole-grain label at all.

- What should I do if my product is traditionally called ‘whole grain’, yet does not meet the criteria for being called ‘whole grain’ (i.e. ≥30 % whole grain on a dry weight basis, more whole-grain ingredients than refined grain)?
  - Some products may traditionally be called ‘whole grain’, such as whole-grain or wholemeal bread¹, or whole-grain pasta, yet are made with a substantial amount of refined flour.
  - If a country adopts a whole-grain food definition based on the Healthgrain whole-grain food definition, these products would no longer be able to be called ‘whole grain’ on the basis that it would be misleading to the consumer.
  - Factual statements about the whole grain content would still be allowed.
  - Producers are strongly encouraged to raise the whole grain level to the level mentioned in the definition. Gradual changes in product formulations – e.g. less salt, less sugar, more unsaturated and less saturated and trans fatty acids and more whole grain – have been applied with success in many products and countries.

¹ In the United Kingdom, ‘wholemeal’ can only refer to 100 % whole grain flour or a product based on 100 % whole-grain flour (http://www.legislation.gov.uk/uksi/1998/141/made?view=plain).
National regulatory authorities are strongly encouraged to work towards raising the requirements for whole-grain labelling to the level proposed in the definition.

Statements that could be misleading such as ‘Sourdough bread made with whole-grain flour’ are not allowed.

- Factual statements such as ‘Sourdough bread made with 20 % whole-grain flour’ are generally allowed based on local regulations

Consumers will be confused by differences between QUID and dry weight labelling for foods such as bread and fresh pasta

- Dry weight-based labelling of whole grain content has been used for many years in Sweden without problem.
- For many foods there is a disconnect between what goes into a food and the QUID without any apparent problem for consumers – for example: ‘2 kg of tomatoes used to make 1 kg tomato sauce’.

Some products have very little moisture content, such as breakfast cereals and crispbreads. Do these need to be corrected for dry weight?

- Adjusting for dry weight is critical for products with a high amount of water in the form they are sold in. Products with generally ≤10 % water do not need to adjust for the water content for whole-grain labelling.
- Dry weight measured gravimetrically (by weighing) after drying overnight at 105-110 ºC and cooling in a desiccator remains the standard by which dry matter is measured. Any queries about the moisture content of a whole-grain food need to be resolved using this reference method.

Dry weight calculation by estimation:

- (Total weight of all ingredients – (added water + water in foods with >10 % water)/Total weight of all ingredients) x 100 = percentage dry weight
- Ingredients with ≤10 % water are considered to have a negligible amount of water which does not need to be factored into the calculation
- Flour has an average water content of 12 %, which does need to be factored into the dry weight estimation.

For example, for determining the whole grain content of bread based on dry weight:

- 250 g whole grain flour + 250 g refined wheat flour + 333 g water + 10 g salt + 5 g dry yeast = total weight 848 g
- Added water = 333 g
- Water in 500 g flour with average 12 % water content: 500 x 0.12 = 60 g
- Negligible water in salt and dry yeast
- Total water = 393 g
- (848 g total weight - 393 g water/848 g total weight) x 100 = 53.7 % dry weight

Why is there no mention of amount of whole grain per serving?

- Serving sizes are used in a number of nutritional recommendations, especially in the United States, with the aim to express the amount of a food component in a size that is meaningful to the consumer. Serving sizes vary widely for different foods, and make comparison between different foods overly complex when serving sizes vary. A percentage based on dry weight makes it possible to easily compare different foods.
It is acceptable to include a whole-grain label based on serving size or amount normally consumed, provided the percentage whole grain is also stated on the front of pack.

Generally in Europe, ingredient and nutrient contents are given on a percent or per 100 g basis. This definition is in keeping with this norm.

- Can foods made with fermented, germinated or otherwise processed whole grains be called ‘whole grain’?
  - Essentially all cereal foods that we eat are processed (e.g. milled or boiled). Studies finding an association between whole grain intake and better health outcomes have been based on food products that are made with processed whole grains, and there is no clear evidence that any of the commonly used processing methods for grains present any danger to long-term health, with the exception of acrylamide formation when starch and sugar rich foods are heated.
  - Germination (e.g. malting) and fermentation (e.g. the use of yeast and/or lactic acid bacteria, either native or added to flour to make bread) have been long accepted processing methods to make cereal products (e.g. bread). These processes are known to have an effect on the nutrient composition of the resulting products – generally the partial degradation of starch to mono- and disaccharides, and of proteins to peptides and amino acids. Limited degradation of fibre may also take place.
  - In accordance with guidelines from an expert group from the American Association of Cereal Chemists International (AACCI) (3), and accepted by the United States Department of Agriculture, germinated grains may be called ‘whole grain’ as long as the sprout is not longer than the grain itself (4) provided there are no concerns about safety.
  - Many fermentation processes now use purified enzymes to perform the same reactions that traditionally have been carried out by yeast or bacteria. Food products that are produced using fermentation processes that include purified enzymes can still be labelled ‘whole grain’ provided they meet the requirement for proportion of whole grain.
    - To avoid the use of enzymatic processes that also break down fibre and other key nutrients within whole grains, any process that reduces the content of dietary fibre by more than 10% cannot be used on a product labelled ‘whole grain’.
  - The effects of different processing methods on cereal product composition have not been fully defined and are an area of active research. As this is better understood, changes as necessary will be incorporated into future updates to this definition.

- Does the type of whole grain used need to be stipulated along with the whole-grain label?
  - No, though it is encouraged to include the name of the grain(s) used: e.g. ‘Whole-grain bread made with 50% whole-grain rye’

- Is there any place for other terms that imply ‘whole grain’? Like ‘multigrain’?
  - Several terms are used to imply ‘whole grain’, without necessarily including whole-grain ingredients. Common examples are ‘multigrain’, ‘granary’, ‘stone milled’, ‘ancient grains’, ‘dark bread’, ‘coarse bread’, ‘brown bread’.
  - These terms are not encouraged as they are likely to mislead consumers who think they are getting whole-grain-based products, when the product may be made with a negligible amount of whole grains, or even none at all.
- Fact-based statements using these terms along with whole grains are acceptable. For example: ‘Made with 60% multi-whole grains’, ‘100% stone milled whole-grain flour’.
- I am a scientist doing research on whole grains. What does this definition mean for me?
  - This definition is primarily designed to guide food manufacturers as to what products can be labelled ‘whole grain’. When reporting on whole-grain intake and similar parameters, researchers should report the intake of whole-grain ingredients, rather than the amount of whole-grain products, irrespective of whether the product is labelled ‘whole grain’ or not.
  - The move to reporting percentage of whole-grain ingredients on packaging will help researchers determine whole-grain intake. For further guidelines on reporting whole grains in scientific research, please see these recent recommendations (5).

Supplemental References

Supplemental Table 1: Examples of how to apply the whole grain food definition in practice.

<table>
<thead>
<tr>
<th>Product</th>
<th>Whole-grain ingredients</th>
<th>Refined grain ingredients</th>
<th>Non-cereal ingredients</th>
<th>Can be labelled a whole-grain food?</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bread</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bread example 1</td>
<td>10 %</td>
<td>85 %</td>
<td>5 %</td>
<td>Not a whole-grain food</td>
<td>The amount of whole grain is too low for this bread to be labelled ‘Whole-grain bread’.</td>
</tr>
<tr>
<td>Bread example 2</td>
<td>40 %</td>
<td>45 %</td>
<td>15 %</td>
<td>Not a whole-grain food</td>
<td>More than 30 % of the total product dry weight is whole grain, but there is not more whole-grain than refined grain ingredients. Therefore this bread does not qualify as ‘whole grain bread’.</td>
</tr>
<tr>
<td>Bread example 3</td>
<td>75 %</td>
<td>24 %</td>
<td>1 %</td>
<td>Can be labelled ‘whole-grain bread’</td>
<td>More than 30 % of the total product dry weight is whole grain, and there are more whole grains than refined grains. Therefore this product qualifies as ‘whole grain bread’. Note that healthy nutrition guidelines need to be considered.</td>
</tr>
<tr>
<td>Pasta</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pasta</td>
<td>10 %</td>
<td>85 %</td>
<td>0 %</td>
<td>Not a whole-grain food</td>
<td>The amount of whole grain is too low for this pasta to be labelled ‘whole-grain pasta’.</td>
</tr>
<tr>
<td>High fibre pasta</td>
<td>0 %</td>
<td>90 %</td>
<td>10 % wheat bran</td>
<td>Not a whole-grain food</td>
<td>Wheat bran is not a whole grain, therefore this product cannot be labelled ‘whole-grain pasta’</td>
</tr>
<tr>
<td>Egg pasta</td>
<td>45 %</td>
<td>45 %</td>
<td>10 %</td>
<td>Not a whole-grain food</td>
<td>More than 30 % of the total product dry weight is whole grain, but there is not more whole-grain than refined grain ingredients. Therefore this pasta cannot be labelled as ‘whole-grain pasta’.</td>
</tr>
<tr>
<td>Product Type</td>
<td>Whole-grain Ingredients</td>
<td>Refined Grain Ingredients</td>
<td>Sugar and Salt</td>
<td>Labeling Notes</td>
<td></td>
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<tr>
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<tr>
<td>Egg pasta with vegetables</td>
<td>45%</td>
<td>40%</td>
<td>15%</td>
<td>Can be labelled ‘whole-grain pasta’ As the amount of non-cereal ingredients (e.g. egg, vegetables) has increased, and there is more whole-grain than refined grain ingredients, it is possible to label this as ‘whole-grain pasta’. Note that healthy nutrition guidelines need to be considered.</td>
<td></td>
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<tr>
<td>Breakfast cereals</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Cereal flakes 1</td>
<td>35% whole-grain wheat</td>
<td>40% refined flours</td>
<td>25% sugar and salt</td>
<td>Not a whole-grain food Although there are more than 30% whole-grain ingredients, there is more refined grain ingredients than whole grain, so this breakfast cereal cannot be called ‘whole grain’.</td>
<td></td>
</tr>
<tr>
<td>Cereal flakes 2</td>
<td>50% whole grain wheat</td>
<td>20% refined wheat</td>
<td>30% sugar and salt</td>
<td>Can be labelled ‘whole grain breakfast cereal’ More than 30% whole-grain ingredients and more whole-grain ingredients than refined grains, so qualifies as a ‘whole-grain breakfast cereal’. Note that healthy nutrition guidelines need to be considered.</td>
<td></td>
</tr>
<tr>
<td>Muesli</td>
<td>60% mixed whole grains</td>
<td>10% refined cereal flakes</td>
<td>30% fruit and nuts</td>
<td>Can be labelled ‘whole-grain breakfast cereal’ More than 30% whole-grain ingredients and more whole-grain ingredients than refined grains, so qualifies as a ‘whole-grain breakfast cereal’. Note that healthy nutrition guidelines need to be considered.</td>
<td></td>
</tr>
<tr>
<td>Whole-grain wheat based</td>
<td>97% whole-grain wheat</td>
<td>0%</td>
<td>3%</td>
<td>Can be labelled ‘whole-grain breakfast cereal’ More than 30% whole-grain ingredients and more whole-grain ingredients than refined grains, so qualifies as a ‘whole-grain breakfast cereal’. Note that healthy nutrition guidelines need to be considered.</td>
<td></td>
</tr>
<tr>
<td>breakfast cereal</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Ready meals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soup with croutons</td>
<td>Croutons with 100% whole grain wheat make up 55% of soup (dry matter)</td>
<td>0%</td>
<td>45% soup dry matter</td>
<td>Can be labelled ‘soup with whole-grain croutons’ The croutons are made with whole-grain flour and no refined flour. More than 30% of the total product dry weight is whole grain, and there are more whole grains than refined grains. Therefore this product qualifies for a ‘whole grain label’. Note that healthy nutrition guidelines need to be considered.</td>
<td></td>
</tr>
</tbody>
</table>
**Pizza example 1**  
Crust made with 60 % whole grain dry matter basis  
Crust made with 30 % refined grain dry matter basis  
Overall proportion of whole grain in pizza on a dry weight basis is 35 %  
Can be labelled ‘Pizza made with a whole-grain crust’  
The pizza crust is made with 60 % whole grain, and overall the pizza is >30 % whole grain, therefore the pizza crust can be labelled ‘whole grain’. Note, the pizza cannot be labelled a ‘whole-grain pizza’, and that healthy nutrition guidelines need to be considered.

**Pizza example 2**  
Crust made with 45 % whole grain dry matter basis  
Crust made with 40 % refined grain dry matter basis  
Overall proportion of whole grain in pizza on a dry weight basis is 25 %  
Cannot be labelled as ‘Pizza made with whole-grain crust’  
Although the pizza crust by itself would qualify for a ‘whole-grain pizza crust’ label, overall the whole-grain ingredients are less than 30 % of the total dry weight. The product cannot carry a whole-grain label.

**Ready meal example 1**  
100 % brown rice used  
No refined cereal ingredients  
The proportion of brown rice to meat, vegetables and sauce on a dry weight basis is 35 %  
Can be labelled as ‘Made with whole-grain rice’  
More than 30 % of the total dry weight of the meal is whole grain, therefore the whole-grain component can be labelled as such on the front of the packaging. Note that healthy nutrition guidelines need to be considered.

**Ready meal example 2**  
51 % whole-grain wheat (in pasta)  
49 % refined wheat (in pasta)  
The proportion of pasta in the meal is 55 % dry weight basis  
Can be labelled ‘Pasta made with 51 % whole-grain ingredients’. Cannot be labelled ‘Ready meal with whole-grain pasta’.  
Although the pasta by itself would qualify as ‘whole-grain pasta’, the proportion of whole grain in the overall meal is only 28 % (55 % x 51 %), so the pasta cannot be highlighted as ‘whole-grain pasta’ on the front of the packaging.

**Snacks and biscuits**
<table>
<thead>
<tr>
<th>Biscuit example</th>
<th>Whole Grain (%)</th>
<th>Total (%)</th>
<th>Refined Grain (%)</th>
<th>Status</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12%</td>
<td>38%</td>
<td>50%</td>
<td>Not a whole-grain food</td>
<td>The amount of whole grain is too low for this biscuit to be labelled ‘whole-grain biscuit’.</td>
</tr>
<tr>
<td>2</td>
<td>25%</td>
<td>30%</td>
<td>45%</td>
<td>Not a whole-grain food</td>
<td>Made with &lt;30% whole grain and more refined grain than whole grain. Therefore this product does not qualify as a ‘whole-grain biscuit’.</td>
</tr>
<tr>
<td>3</td>
<td>31%</td>
<td>25%</td>
<td>44%</td>
<td>Can be labelled as a ‘whole-grain biscuit’</td>
<td>More than 30 % of the total product dry weight is whole grain, and there are more whole grains than refined grains. Therefore this product qualifies as a ‘whole-grain biscuit’. Note that healthy nutrition guidelines need to be considered.</td>
</tr>
</tbody>
</table>