



A Closer Look at What's in Our Daily Bread

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Preface

Organic production systems have distinct impacts on both grain quality and safety, in addition to well-documented environmental benefits. Yet there is remarkably little information available on the nutritional and food safety advantages of organic farming and food manufacturing in the grains and grain-based food product sector.

To close this knowledge gap, The Organic Center is conducting a multi-year grain study to document the nutritional differences between conventional, “natural,” and organically farmed grains and grain-based products. We are systematically seeking answers to the following critical questions: How do conventional and organic manufacturing processes impact food quality? What toxins and food additives are present in raw and finished products? How do milling and cooking alter nutrient composition?

The study will draw on published research and data from our own testing, and encompass the following topics:

- Nutrients and calories per serving
- Protein levels and fiber content
- Pesticide residues and risk levels
- Mycotoxins
- Total antioxidant capacity (as measured by ORAC)
- Mineral levels
- Presence/absence of additives
- Presence/absence of preservatives
- Taste and organoleptic quality

The exercise described in this report—the first of a series of reports to be issued as part of the study—was initiated to gain a better understanding of the ingredients in one of the most commonly consumed grain products—bread. Our goal was to understand the differences between organic, “natural,” and conventional breads, what these differences look like, and what they mean to consumers.

This is just a first step. As the study progresses, we will continue to add to this analysis as well as expand it to incorporate other grain-based products. We hope that a better understanding of the quality of bread and other grain-based products will empower consumers to make healthier choices.



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Executive Summary

Bread plays an important role in the overall consumption of grains, particularly whole grains. Today there is an increasing variety of organic, “natural,” and conventional bread—white, wheat, whole wheat, sprouted wheat, and gluten-free. Each with its own claim about freshness, taste, nutrition, and other benefits. But what’s really in our daily bread? Does the type of bread you eat really make a difference? And in particular, how do organic bread ingredients differ from those in “natural” and conventional bread?



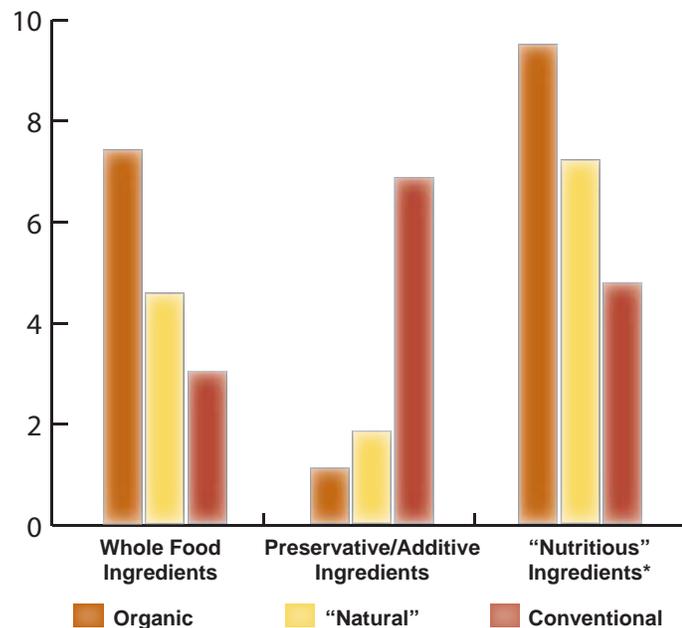
To help answer these questions, we examined the ingredient lists of a selection of 36 organic, “natural,” and conventional wheat breads and identified and counted the number of ingredients in five categories: Whole Foods, Refined/Processed, Preservative/Additive, Nutritional Supplements, and Other.

In short, there is a difference. Organic breads on average contain 49% Whole Food ingredients versus 24% in “natural” bread and only 12% in conventional bread. Preservative/Additive ingredients made up 27% of our conventional bread ingredients versus only 10% and 7% in “natural” and organic bread respectively.

But what do these differences mean to you?

In a word—nutrition. Whole food ingredients provide a broad range of important nutrients. So more whole food ingredients equal more nutrient-rich breads. Even some refined ingredients, such as white flour, while significantly less nutritious than their whole food counterparts, still contain important nutrients. Counting both whole food ingredients and these less valuable ingredients together, 9.5 of 15 (or 63%) of the average ingredients found in our organic breads are “nutritious.” By comparison, only 28% of the ingredients in our conventional breads contribute a significant nutritional benefit. If we exclude the nutritional supplements that are added to “enriched” flour, only 19% of conventional bread ingredients are nutritionally beneficial. Organic breads are also consistently lower in added sweeteners and flavor and texture enhancers.

In this day, when so many foods are calorie-rich and nutrient-poor, identifying and seeking out nutrient-rich foods is important. As the study progresses, we will continue to add more brands of organic, “natural,” and conventional breads to this analysis, as well as other major grain-based products. We hope that a closer look and understanding of the ingredients in grain-based products will empower consumers to make healthier choices.



* Nutritious ingredients for conventional and “natural” bread exclude nutritional supplements added to “enriched” flour. With these nutritional supplements, the average number of ingredients is 9 for “natural” bread and 7 for conventional bread.

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Taking Stock of What's in Bread

Today there is an increasing variety of organic, “natural,” and conventional breads to choose from—white, wheat, whole wheat, sprouted wheat, gluten-free, multi-grain and other varieties. Each has its own claim about freshness, taste, nutrition, and other benefits. Conventional bread is often promoted for its taste and texture; “natural” bread for containing more whole grains and few, if any, preservatives; and organic bread for its organic ingredients, relative lack of pesticide residues, and absence of synthetic chemical preservatives and additives.

The wide and increasing variety of whole grain bread partly reflects increasing awareness of the health benefits of whole grains and their role in preventing many chronic diseases such as cardiovascular disease, various types of cancer, obesity, and Type 2 diabetes (Jonnalagadda et al. 2011). Because of these benefits, the USDA recommends at least 6 servings of grains a day, with at least half of these coming from whole grains (www.choosemyplate.gov).

Bread plays an important role in the overall consumption of grains, particularly whole grains. Bakers are responding by producing more whole wheat and multi-grain bread. But does the type of bread you eat really make a difference? And in particular, how do organic bread ingredients differ from those in “natural” and conventional bread, and how different are “natural” and conventional bread?

To help answer these questions, we examined the ingredient lists of a selection of 36 organic, “natural,” and conventional wheat breads. We identified and counted the number of ingredients in five categories:

1. Whole Foods
2. Refined/Processed Ingredients
3. Preservatives and Additives
4. Nutritional Supplements
5. Other

Samples of each type of bread were selected from various major supermarkets and natural

What's in a Name?

“ORGANIC” BREAD

- * must contain at least 95% organic ingredients by weight (not counting water or salt)
- * may use the USDA organic seal

BREAD “MADE WITH ORGANIC INGREDIENTS”

- * must contain at least 70% organic ingredients by weight
- * cannot use the USDA organic seal



Unlike “ORGANIC,” the term “NATURAL” is not regulated in the U.S. (except for meat and poultry) and can therefore be used in a variety of circumstances, and without any oversight.

“NATURAL” is applied broadly to foods that are

- * minimally processed
- * free of synthetic preservatives and other additives, such as artificial sweeteners, colors, and flavors
- * (usually) free of hydrogenated oils, stabilizers, and emulsifiers

Company or brand-specific “NATURAL” standards vary widely and often differ only modestly from those common in conventional products as evident from our results.

Sample Bread Labels

100% ORGANIC BREAD

INGREDIENTS: organic whole wheat flour, water, organic cracked wheat, organic brown sugar, organic wheat gluten, organic wheat bran, yeast, high oleic sunflower and/or safflower oil, sea salt, organic vinegar, organic oat flour, organic molasses, cultured organic wheat starch, organic barley malt, ascorbic acid, natural enzymes

CONTAINS: WHEAT

“NATURAL” WHEAT BREAD

INGREDIENTS: whole wheat flour, water, sugar, wheat gluten, yeast, wheat flour, wheat bran, contains 2% or less of: black and white sesame seeds, whole grain mix (wheat flakes, oat flakes, barley flakes, rye flakes, triticale flakes, buckwheat flour, millet, corn grits, sorghum cuts, brown rice flour, amaranth flour, quinoa), cornmeal, cultured wheat flour, soybean oil, salt, brown rice flour, molasses, oat flakes, vinegar, cultured corn solids, barley malt, yeast extract, soy lecithin, soy flour, whey

CONTAINS: WHEAT, MILK and SOYBEANS

WHEAT BREAD (CONVENTIONAL)

INGREDIENTS: Enriched wheat flour, [flour, barley malt, ferrous sulfate (iron), “B” vitamins (niacin, thiamine mononitrate (B1), riboflavin (B2), folic acid)], water, sweetener (high fructose corn syrup or sugar), yeast, soybean oil, contains 2% or less of: salt, wheat gluten, sweet dairy whey, butter (cream, salt, enzymes), soy flour, calcium sulfate, dough conditioner (may contain: sodium stearoyl, lactylate, datem, mono and diglycerides, calcium dioxide and/or dicalcium phosphate), cornstarch, wheat starch, yeast nutrients (may contain: ammonium chloride, ammonium phosphate, and/or ammonium sulfate), beta-carotene (color), natural flavor, enzymes, calcium propionate (to retain freshness), soy lecithin

CONTAINS: WHEAT, MILK and SOYBEANS

food markets in three states. Listed ingredients were recorded and assigned to the five categories. For each bread, we tallied the five types of ingredients and compared average results for conventional, “natural,” and organic breads.

Five Ingredient Categories

For purposes of this exercise, **Whole Food** ingredients are defined as those that contain 75% or more of the broad range of nutrients contained in their unaltered food form. For example, whole wheat flour contains the original nutrients found in wheat grain, whereas refined flour (often labeled “flour,” “wheat flour,” or “unbleached flour”) has had the bran and germ removed, resulting in losses of more than 25% of many nutrients (Davis, 1981).

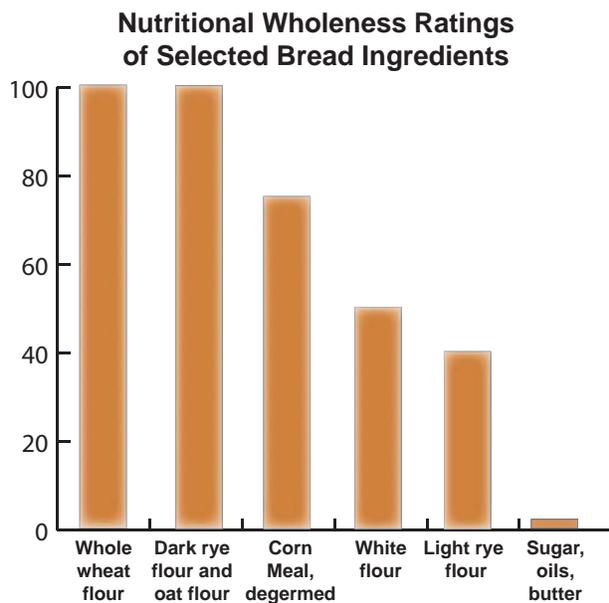
For some ingredients, their wholeness is obvious, such as whole grains, eggs, whole milk, honey, and raw fruits and vegetables. For less obvious ingredients, we use the Nutritional Wholeness™ ratings in NutriCircles® software (Strickland Computer Consulting, 2011, strickla@pacbell.net).

NutriCircles® software emphasizes nutrient density (nutrient amounts per calorie of a given food) and contains data for nearly 4,000 foods

Table 1: The following bread ingredients have Nutritional Wholeness™ ratings of 75% or more and are counted as whole foods, whether in conventional, “natural,” or organic brands:

Whole Food Ingredients	
Amaranth	Oat Flour
Barley	Poppy Seeds
Brown Rice	Pumpkin Seeds
Buckwheat	Quinoa
Buttermilk	Rye
Corn	Rye Flour, Dark
Corn Meal	Sesame Seeds
Corn Meal, Blue	Sorghum
Cracked Whole Wheat Flour	Soy Beans, Cracked
Cultured Wheat	Soy Flour
Cultured Whey	Spelt
Flax	Stone Ground Flour
Flax Seeds, Brown and Golden	Teff
Honey	Triticale
Honey Solids	Wheat
Kamut	Wheat Bran
Khorasan Wheat	Wheat Germ
Milk	Whey
Millet	Whole Wheat Flour
Non-fat Milk	Yeast
Oats	

and mixtures from the USDA's current Nutrient Database for Standard Reference. All foods have 100% wholeness upon harvest. When foods are refined and processed, they often suffer broad nutrient losses, and as a result, the Nutritional Wholeness™ rating in NutriCircles® declines. Nutritional Wholeness™ provides a rough estimate of the percentage of the original nutrients contained in a food that remain after processing. For example, whole milk, fruits, and whole wheat kernels have 100% wholeness; but when refined or processed their Nutritional Wholeness™ decreases. Butter has a 0% wholeness rating, as it has very little of the original nutrients found in whole milk. Refined flour and fruit juices have wholeness ratings of 50% to 75%.



In this exercise, all bread ingredients with Nutritional Wholeness™ ratings of 75% or higher were classified as Whole Food (see Table 1). Some products of food refining are also rated as Whole Food because of their high nutrient content. For example, wheat bran and germ, while refined grain portions, are extraordinarily rich in a broad range of nutrients. Yeast is a simpler organism than plant or animal foods, but is nevertheless a broadly nutritious whole food. Salt and water have a sparse nutrient density and are classified as Other ingredients.

Some whole foods are found in bread at a level that makes their nutrient contribution negligible. We

were able to identify such ingredients if our bread labels voluntarily identified ingredients found in amounts of 2% or less by weight. Such ingredients are usually additives, preservatives, salt, yeast, and micronutrients. In about 31% of our breads whole food ingredients were listed as present at a level less than 2% of a product by weight. We classified such small amounts of whole foods as Other ingredients rather than Whole Food to avoid giving such breads undue credit for wholeness. We were unable to make this distinction for a small number of whole foods that may have been present at less than 2%, but were not so labeled. A complete list of the Whole Food ingredients found at 2% or less is included in the Appendix.

Refined/Processed ingredients are foods that contain less than 75% of the nutrients found in their unaltered form. These ingredients include refined flour (mentioned above), vegetable oils, butter, sugars, and syrups, all of which have major losses of nutrients compared to their original source. Other ingredients in this category include rice protein, wheat and corn starch, and wheat gluten, all with Nutritional Wholeness™ ratings of less than 75%. Functional fibers, including oat fiber, sugar cane fiber, and cellulose, were also included in this category for reasons discussed below.

Preservative/Additive ingredients are synthetic or natural substances added to foods for non-nutritive purposes. Preservatives are added to maintain freshness or texture, or to extend shelf life. Additives are added for other non-nutritive purposes, such as enhancing flavor and texture.

Example of Common Preservatives and Additives Found in Conventional Bread
Ammonium chloride
Azodicarbonamide
Calcium propionate
Ethoxylated mono and diglycerates
Sodium stearyl lactylate
Mono and diglycerides
Calcium sulfonate
Datam
Sucralose

Nutritional Supplements are ingredients added to either flour or grain-based products to enhance nutritional quality. In the case of bread products shipped in interstate commerce, federal regulations require that “enriched” flour must contain specific amounts of added riboflavin, niacin, thiamin, iron, and folic acid, mostly to replace nutrients lost in the milling process. Some breads also contain additional nutritional ingredients, such as calcium and vitamin D. Certain ingredients can serve as both nutrients and additives to preserve, enhance texture, and/or aid in the rising of the dough. If the purpose of such an ingredient was clearly marked on the label, we classified it accordingly. However, nutrient-containing ingredients with unknown and unmarked purpose were classified as Nutritional Supplements. Zinc oxide and beta-carotene are examples (beta-carotene is also sometimes added for color).



Natural ingredients not falling within the above four categories were classified as **Other**. They include many basic ingredients such as water, salt, and vinegar, plus less common ingredients such as soy lecithin and sourdough starters.

Some bread ingredients can arguably be assigned to two or more of our chosen categories. In those cases we tried to choose the most appropriate category. Nearly all bread ingredients are “processed” in some way, but for purposes that better qualify them for one of our other categories. For example, stevia extract is refined and processed from the stevia plant, but its purpose in bread is as a non-nutritive sweetener (Additive). Another example is several sources of fiber that are added to breads, usually oat fiber, sugar cane fiber, cellulose, polydextrose, or inulin (chicory root fiber). They are all certainly processed, and many are refined from foods. However, all of them are added at least partly to increase the labeled fiber content (arguably Nutritional Supplements), and some have dual uses as non-nutritional additives to improve the texture of some foods. In bread, we categorized them all as Refined/Processed, because they are not used primarily as non-nutritional additives, and because none of them fit the Institute of Medicine’s (IOM) definition of the nutrient, “dietary fiber.” (http://www.nap.edu/openbook.php?record_id=10490&page=R1). Dietary fiber must be “intact, naturally occurring, food source only” and “the plant cells...remain largely intact.” Oat fiber and the other examples listed above are nearly pure fiber, with little or no intact plant cells. Cellulose is not even from a food source. These ingredients are classified by the IOM as “functional fibers” with benefits such as stool bulking, but they almost surely do not have all the benefits of “dietary fiber.”

Sample Ingredient Lists

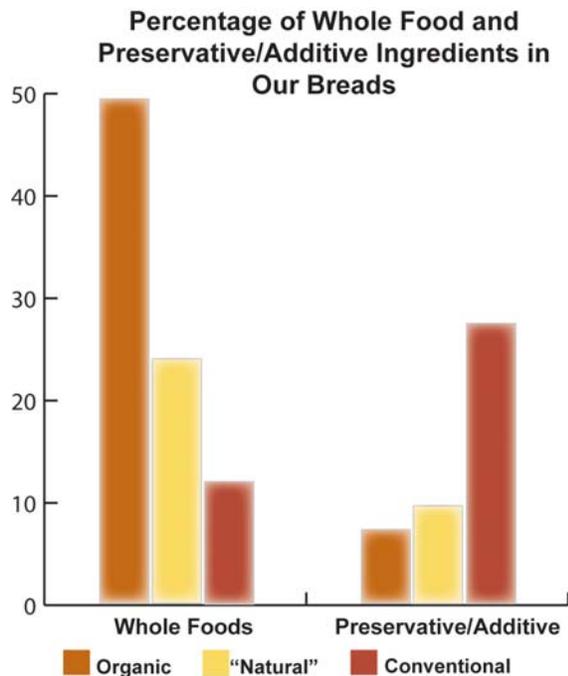
Rudi's Organic 100% Whole Wheat Bread		Earth Grains 100% Natural Whole Wheat Bread		Sarah Lee's 100% Multi Grain Bread	
Organic Whole Wheat Flour	Whole Food	Stone Ground Whole Wheat Flour	Whole Food	Whole Wheat Flour	Whole Food
Water	Other	Water	Other	Water	Other
Organic Cracked Wheat	Whole Food	Wheat Flour	Refined/Processed	Wheat Flour	Refined/Processed
Organic Brown Sugar	Refined/Processed	Bulgur Wheat	Whole Food	Wheat Gluten	Refined/Processed
Organic Wheat Gluten	Refined/Processed	Wheat Gluten	Refined/Processed	Yeast	Whole Food
Organic Wheat Bran	Whole Food	Brown Sugar	Refined/Processed	Brown Sugar	Refined/Processed
Yeast	Whole Food	Honey	Whole Food	Bulgur Wheat	Other*
High Oleic Sunflower and/or Safflower Oil	Refined/Processed	Yeast	Whole Food	Rye	Other*
Sea Salt	Other	Soy oil	Refined/Processed	Oats	Other*
Vinegar	Whole Food	Cultured Wheat Flour	Refined/Processed	Barley	Other*
Organic Oat Flour	Other	Salt	Other	Triticale	Other*
Organic Molasses	Refined/Processed	Raisin Juice Concentrate	Refined/Processed	Corn	Other*
Organic Cultured Wheat Starch	Refined/Processed	Distilled Vinegar	Other	Millet	Other*
Organic Barley Malt	Refined/Processed	Oats	Other*	Soy Oil	Refined/Processed
Ascorbic Acid	Preservative/Additive	Guar Gum	Other	Salt	Other
Natural Enzymes	Preservative/Additive	Flaxseed	Other*	Flax Seed	Other*
		Molasses	Refined/Processed	Milk	Other*
		Enzymes	Preservative/Additive	Soy Flour	Other*
		Soy Lecithin	Other	Corn Starch	Refined/Processed
		Soy Flour	Other*	HF Corn Syrup	Refined/Processed
				Vinegar	Other
				Guar Gum	Other
				Wheat Bran	Other*
				Corn Syrup Solids	Refined/Processed
				Honey Solids	Other*
				Calcium Propionate	Preservative/Additive
				Soy Lecithin	Other
				Cellulose	Refined/Processed
				Mono and Diglycerides	Preservative/Additive
				Sodium Stearoyl Lactylate	Preservative/Additive
				Calcium Sulfate	Other
				Monocalcium Phosphate	Other
				Datem	Preservative/Additive
				Azodicarbonamide	Preservative/Additive
				Enzymes	Preservative/Additive
				Ammonium Chloride	Preservative/Additive

* Indicates a whole food ingredient present at less than 2%

Our Findings

Overall, there were significant differences between organic bread and both “natural” and conventional bread. There was less difference between “natural” and conventional bread than might be expected. Most noticeably, organic bread has far fewer ingredients than both “natural” and conventional bread. On average our organic breads had only 15 ingredients compared to 25 in the conventional breads and 19 in “natural” breads. Excluding Dave’s Organic Killer Bread, which contains 21 different whole grains, our organic breads averaged only 12 ingredients, just under half of the conventional average.

Organic bread contains on average 49% Whole Food ingredients, versus only 12% found in conventional bread.



Average Breakdown of Ingredients			
	Organic Bread	Natural Bread	Conventional Bread
Total Ingredients	15	19	25
Whole Food	7	5	3
Refined/Processed	4	5	6
Preservative/Additive	1	2	7
Nutritional Supplements	0	2	2
Other	3	7	7

There was also a notable difference in the kind of ingredients used in each type of bread. Our organic breads on average contain 49% Whole Food ingredients versus 24% in “natural” breads, and only 12% in conventional breads. The primary Whole Food ingredients found in our organic breads include whole wheat flour, cracked wheat, rolled oats, sunflower seeds, honey, and other whole grains such as sorghum, corn, and triticale. In contrast, the primary non-Whole Food ingredients found in our conventional breads include high fructose corn syrup, soy lecithin, and fiber sources such as cellulose, along with a cocktail of preservatives and additives to improve taste, texture, and shelf life.

These large differences in Whole Food ingredients arise partly because we counted minor whole foods (listed as 2% or less by weight) as Other ingredients. Our conventional and “natural” breads tended to have more of their Whole Food ingredients in minor amounts (average 2.8 each) than did the organic breads (0).

Another significant difference was the number of distinct Preservative/Additive ingredients. We found a total of 82 Preservative/Additive in our conventional breads, compared to only 12 in

organic breads and 20 in “natural” breads. Preservative/Additive ingredients make up 27% of our conventional bread ingredients versus only 10% and 7% in the “natural” and organic breads respectively.

Our organic breads consistently contain far fewer additional ingredients over the basic ingredients of bread—flour, water, yeast, salt, and honey/sugar. The additional ingredients in organic bread tend to be other flours or whole grains, oil, and wheat gluten.

The “natural” bread ingredients are far more variable, ranging from the basic five ingredients to 36 ingredients of all types in one bread, including preservatives and additives. Some “natural” bread is very similar to conventional bread, which consistently contained a standard mixture of preservatives and additives, coupled with very few whole food ingredients.

Some ingredient differences imply substantial differences in nutrient content. Organic bread with more whole grains and whole food ingredients, will have greater Nutritional Wholeness™ and nutrients per calorie than the more refined “natural” and conventional counterparts.

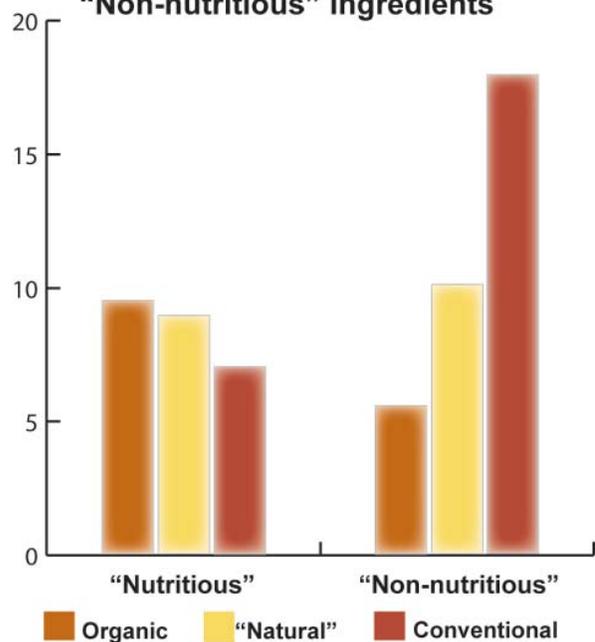
To illustrate this difference we created a separate category of “Nutritious” ingredients that are significant sources of nutrients.

Example of “Non-Nutritious” Ingredients
Soy lecithin
Maltodextrin
Citric acid
Mono and diglycerides
Sugar
Butter
Corn starch
Evaporated cane juice
Canola oil
Raisin juice
Datam
Enzymes

These include Whole Food and some Refined/Processed ingredients such as white flour, but don’t count sweeteners, starches, fats, oils, and ingredients found in less than 2% (other than added Nutritional Supplements, which we included). All other ingredients are “Non-Nutritious.”

Out of the average 15 ingredients in our organic breads, 9.5 are significant nutrient sources (63%). In our “natural” breads, the “nutritious” ingredients average 9 out of 19 (47%). Even though conventional breads contained more ingredients on average (25) than both our “natural” and organic breads, they averaged only 7 “nutritious” ingredients (28%). Excluding the “enrichment” nutrients required in our conventional breads with white flour, only 19% of the remaining ingredients are nutritionally beneficial.

Average Number of “Nutritious” and “Non-nutritious” Ingredients



Organic bread is also consistently lower in added ingredients such as sweeteners and flavor and texture enhancers. In this day, when so many foods are calorie-rich and nutrient-poor, identifying and seeking out nutrient-rich foods can play an important role in helping consumers choose the healthiest food options.

Minimizing Pesticide Risks

In addition to containing more nutritionally wholesome whole food ingredients, organic bread also helps lower exposure to pesticides. Most conventional and “natural” breads contain low levels of residues of one or two pesticides, most of which are used to control insects in grain storage bins. These residues translate into modest to moderate risks per serving of bread—risks well below the average risks associated with residues in a serving of fresh fruits or vegetables. Still, pesticide residues in grains and flour have been significant enough to trigger several actions in recent years by the pesticide industry and EPA to reduce dietary risk, particularly targeting high-risk insecticides like the organophosphate (OP) chlorpyrifos-methyl.

This OP insecticide was the industry standard for years in controlling insects in storage bins with conventional grains. The EPA and manufacturers initiated steps to phase out its use in 2001. In the most recent wheat grain testing conducted by USDA (2005), OPs still accounted for 97% of overall risk in wheat grain. In a subsequent report, The Organic Center will provide more details on pesticide use, both in the field and post-harvest, as well as the risk levels associated with the residues found by USDA in grains and grain-based products.



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Appendix

Our Breads

Organic	"Natural"	Conventional
Rudi's Colorado Cracked Wheat Bread	Great Harvest Honey Wheat Bread	Safeway 100% Whole Wheat Bread
Rudi's 100% Whole Wheat Bread	Whole Foods Brand 100% Whole Wheat Bread	Oroweat 100% Whole Wheat Bread
Private Selection (Kroger Brand) Organic Harvest Grain Bread	Dimmer's Bakery 7 Grain Whole Wheat Bread	Pepperidge Farm 100% Whole Wheat Bread
Alvarado Street Organic Sprouted 7 Grain Bread	Open Nature Ancient Grains Bread (100% natural)	Home Pride 100% Whole Wheat Bread
Dave's Organic Killer 21 Whole Grains Bread	Nature's Pride 100% Natural Hearty Wheat Bread	Sarah Lee 100% Multi-Grain Bread
Alpine Valley Whole Grain Organic Bread	Oroweat "Healthfull" Hearty Wheat Bread	Roman Meal Whole Grain Goodness Bread
Organic Whole Wheat Mini Boule (Whole Foods Bakery)	Earth Grains 100% Natural Whole Wheat Bread	Home Pride White
Bavarian Bakery Organic Whole Wheat Bread	Milton's Multi Grain Plus All Natural Wheat Bread	Great Value (Costco Brand) 100% Whole Wheat Bread
UDI's Organic 100% Whole Wheat Bread	Whole Food Bakery - Seeded Whole Grain Wheat Bread	Private Selection (Fresh Bakery) Multigrain Boule
Whole Foods Organic Classic White bread	La Brea Bakery Toasted Sunflower Honey Bread	Private Selection (Fresh Bakery) Rustic Pugliese Loaf
Silver Mills Steady Eddie Organic Wheat Bread (sprouted)	Ecce Panis Fresh Baked (Bakery) 100% Whole Wheat Bread	Kroger Store Bakery Wheat Bread
La Brea Bakery Organic Wheat Bread		Nature's Own Honey Wheat
Silver Mills Big 16 Organic Wheat Bread		

The Ingredients

Whole Food		
amaranth	kamut	soy flour
barley	khurasan wheat	spelt
barley, cracked	milk	stone ground flour
barley, whole and sprouted	millet, whole and cracked	sunflower seeds
brown rice	non-fat milk	teff
brown rice, cracked	oat flour	triticale
buckwheat	oats	wheat flour
bulgur wheat	poppy seeds	wheat bran
buttermilk	potato flour	wheat flakes
corn	pumpkin seeds	wheat germ
corn meal	quinoa	wheat, cracked
corn meal, blue	rye	whey
corn, white and degermed	rye berries, cracked	whole wheat berries
corn, yellow and cracked	rye flakes, whole	whole wheat flour
cultured wheat	rye flour, dark	whole wheat flour
cultured whey	rye meal	whole wheat flour, cracked
flax	semolina	whole wheat, course
flax seeds, brown and golden	sesame seeds, black and unhulled	yeast
honey	sorghum	yeast (fresh)
honey solids	soy beans, cracked	yeast extract

Refined and Processed		
agave	dried cane syrup	oat fiber
barley malt	enriched flour	olive oil
barley malt extract	evaporated cane juice	polydextrose
brown sugar	fructose	raisin juice
butter	high fructose corn syrup	raisin juice concentrate
canola oil	high oleic safflower oil	rice protein
cellulose or cellulose fiber	high oleic sunflower	soy oil
chicory root fiber	inulin (chicory root fiber)	sugar
corn starch	malt	sugar cane fiber
corn syrup solids	malt syrup	sunflower oil
cultured corn solids	malted barley flour	vital wheat gluten
cultured dextrose	malted barley	wheat flour
cultured wheat flour	maltodextrin	wheat gluten
cultured wheat starch	molasses (unsulphured)	wheat starch

Preservatives and Additives		
ammonium chloride	citric acid	monoglycerides
ammonium phosphate	datem	natural enzymes
ascorbic acid	dicalcium phosphate	natural flavor
azodicarbonamide	enzymes	sodium stearoyl lactylate
calcium peroxide	ethoxylated mono and diglycerates	sorbic acid
calcium propionate	liquid caramel	stevia extract
calcium sulfonate	mono and diglycerides	sucralose

Nutritional Supplements		
beta-carotene	niacin	thiamine mononitrate
calcium pantothenate	reduced iron	Vitamin D
folic acid	riboflavin	zinc oxide
iron	thiamin	

Other		
ammonium sulfate	sour culture	guar gum
calcium oxide	soy lecithin	monocalcium phosphate
calcium sulfate	vinegar	sourdough starter
salt	vinegar (distilled)	water
sea salt	vinegar (grain)	water, filtered
sea salt (lower sodium)	dough conditioner (wheat w/ vinegar)	

Whole Food Ingredients Found in Bread at Less than 2%		
cracked barley	cracked yellow corn	rolled whole wheat
cracked brown rice	cultured whey	soy flour
cracked flax	dark rye flour	wheat berries
cracked oats	ground flax	whey
cracked rye berries	honey	whole grain wheat flakes
cracked soybeans	milk	yeast
cracked triticale	non-fat milk	

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