

PULSES...

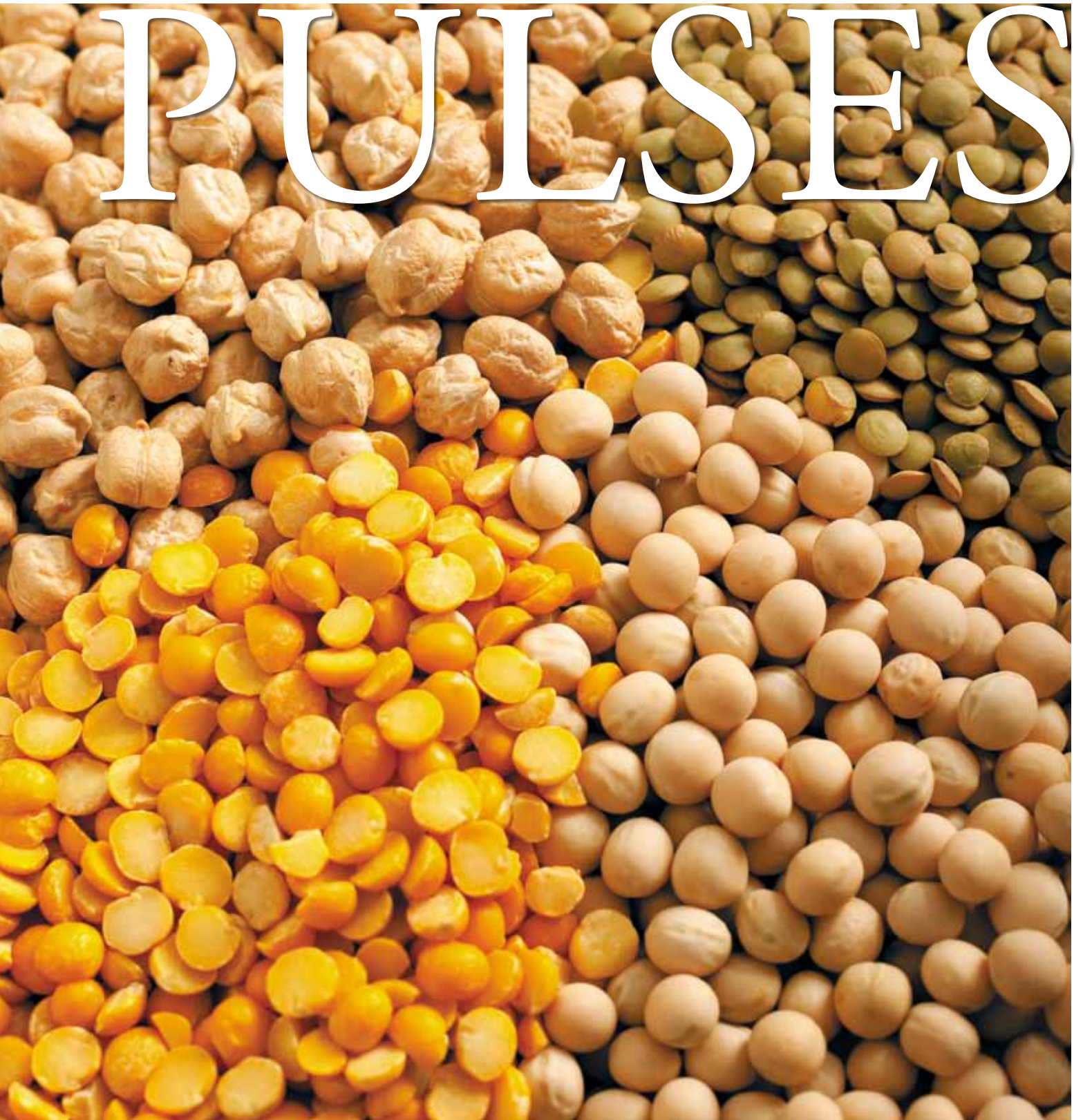


give gluten-free flour power

GLUTEN-FREE

dry pea flour lentil flour chickpea flour

PULSES



THE HEART OF HEALTHY “GLUTEN-FREE” FOODS

More normal than niche, ‘gluten-free’ foods have become mainstream. Many in the trade—including the National Restaurant Association—list the gluten-free diet as one of the hottest trends in the food industry today. The market research firm Packaged Facts reports that the market for gluten-free foods and beverages has grown at a compound annual rate of 30% since 2006 to hit \$2.6 billion in 2010. The firm projects U.S. gluten-free sales will almost double by 2015 to exceed \$5 billion.

Finding a unique and marketable edge in this category is as close as the nearest “pulse.” Pulses, such as yellow peas, lentils and chickpeas, are already gaining recognition as the “new and improved” heart of healthy foods. So it’s only logical that pulse flours can pack gluten-free foods with powerful nutrition and goodness. According to the Harvard Health Letter, food makers have learned how to use xanthan and guar gums to replace gluten’s elasticity but many of these formulations are leaving diets short on protein, fiber and B-vitamins. Indeed, healthier alternatives top the wish list of many who follow a gluten-free diet. Using precooked pulse flours to fortify gluten-free baked goods can make that dream a reality.



The greatest need is for more nutritious alternatives to traditional gluten-containing baked goods.

High Quality Protein

The high quality protein in pea, lentil and chickpea flour makes for a perfect amino acid offering when blended with other gluten-free grains such as rice flour. What's more, these pulses deliver quantity as well as quality: Dry pea, lentil and chickpea flours contain 22%-25% protein, are high in lysine and listed as both a vegetable and protein source in USDA's Food Guide MyPlate.

All Natural Fiber

Consuming adequate fiber is a major issue for celiacs and the gluten

intolerant. Precooked pulse flours made from yellow peas, lentils and

chickpeas can enrich gluten-free baked goods with all-natural dietary fiber that contains the desirable duo of both soluble and insoluble fiber. At 33% and 26% fiber respectively, dry pea and lentil flours, in particular, can transform many gluten-free foods from fiber-poor to fiber-rich.

Full of Folate

B vitamins such as Folate are often lacking in many gluten-free foods. This adds insult to injury for many celiacs who may have spent years undiagnosed and malnourished as gluten interfered with their ability to absorb vital B vitamins. Pulses are an excellent natural source of Folate: just 100 grams of dry yellow pea flour can provide almost 70% of the daily value of Folate. Precooked pulse flours can reduce the need for additional Folate fortification.

Low Fat & Low Sodium Goodness

Peas and lentils are both fat free and sodium free; chickpeas are low fat and low sodium. Pulses are also a dependable source of essential micronutrients such as zinc, potassium, iron and thiamine.

GLUTEN-FREE GOODNESS

Protein	Fiber
Folate	Iron
Zinc	Potassium (lentils)
Low sodium	Low fat





FUNCTIONALITY

PRECOOKED PULSE FLOURS = GLUTEN-FREE FUNCTIONALITY

Advanced processing technology (heat and steam) is naturally producing precooked pulse flours with great functionality in gluten-free applications.

Look for properly processed precooked flours; the heat or steam partially gelatinizes the starch, denatures the protein, inactivates enzymes for longer shelf life, and, in general makes for a highly functional and versatile gluten-free mainstay. In particular, the slightly golden color and remarkably bland flavor of precooked yellow pea flour lets bakers mimic the look and taste of the gluten-containing original.

Precooked pulse flours function just like other high-protein flours but typically contribute far more fiber and micronutrients. An economical alternative, they are also non-GMO and low allergen-- significantly less allergenic compared with soy or almond flours. Precooked pulse flours are a great way to add structure and enhance nutrition in products made with other gluten-free ingredients such as rice flour, tapioca and potato starches. Substituting pulse flours for other high protein alternatives in this mix provides more fiber and high quality protein--the perfect balance of amino acids.

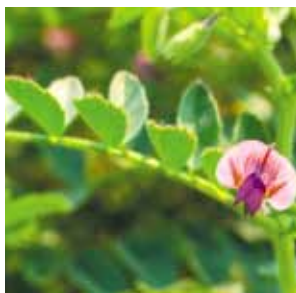
Expect pulse flours to improve moisture retention, flexibility and resilience in gluten-free bakery items. Reliance on expensive gums is rarely needed in most applications. Pregelatinized pulse flours have strong gelling properties that can help create a more functional gluten-like network by taking advantage of the starch in other gluten-free ingredients such as rice flour. Forget powdery cakes, rubbery breads and cardboard cookies: With deliberate optimization, pre-cooked pulse flours can mimic the taste, texture and mouth feel of many gluten-containing favorites.

Formulation Tip: focus on end product texture and appearance, rather than the look of the dough or batter.

REASONS TO REACH FOR PULSE FLOURS

- Neutral color
- Bland flavor
- Traditional texture
- Moisture retention
- Resilience and flexibility
- Non-GMO
- Low allergen

A GROWING
NUMBER OF
PEOPLE DODGING
GLUTEN FALL
INTO A GRAY
AREA; THEY DON'T
HAVE CELIAC
DISEASE BUT SEEM
UNABLE TO DIGEST
GLUTEN PROPERLY.



“G-FREE” NO FAD

More than 3 million Americans may suffer from celiac disease; 95% yet undiagnosed

Sensitivity to gluten is more prominent; as many as one in 7 or more than 20 million classified gluten intolerant

Gluten-free also popular among people who suffer from other auto-immune disorders and maladies such as irritable bowel syndrome, ADD, autism and MS

Gluten-free growing among non-celiac consumers who believe they “feel” better avoiding gluten; perceive gluten-free as healthier

Gluten intolerance now four times more common than 50 years ago, according to landmark Mayo Clinic study; authors suggest perhaps celiac screening needs to become as customary as cholesterol and blood pressure testing

The Challenge

A gluten-free diet is the only therapy for people with celiac disease (celiacs). Celiac disease is an auto-immune disorder triggered by gluten, a protein found in wheat, barley, rye and spelt. In celiacs, gluten damages villi in the small intestine and interferes with the absorption of vital nutrients. Symptoms of the disease can mimic many other gastrointestinal disorders, but left untreated celiac disease can be much more serious. Malnutrition, despite adequate food intake, as well as other auto-immune diseases, osteoporosis, thyroid disease and some cancers may explain why a landmark Mayo Clinic study found that untreated celiacs have a four-fold increase in early death compared to those without celiac disease. U.S. health care cost of untreated celiacs is estimated to be between \$14.5 and \$34.8 billion per year.

The Scope

The Mayo Clinic study found that celiac disease is no longer rare, affecting at least one in 100 Americans. They also found that it is one of the most under-diagnosed conditions because its symptoms often mirror other GI problems such as Crohn’s disease, colitis and irritable bowel syndrome. Of the estimated 3 million Americans who may be celiacs, 95% do not yet know they



have the disease. These “silent celiacs” could raise the count to one case in 83. The Mayo Clinic study authors concluded that this increasing prevalence, combined with the mortality impact suggests that celiac disease could be a significant public health issue. They also suggested that the U.S. may need to look for celiac disease in the general population in the same way it tests for cholesterol or blood pressure levels.

The Opportunity

Gluten intolerance or gluten sensitivity appears to have reached levels associated with other major health issues. Indeed, the Harvard Health Letter reports “a growing number of people dodging gluten fall into a gray area; they don’t have celiac disease but seem unable to digest gluten properly.” The Center for Celiac Research at University of Maryland School of Medicine estimates that up to 7% or 8% of the U.S. population have some degree of sensitivity to gluten. This means more than 20 million Americans may require gluten-free alternatives. Many afflicted with a plethora of other health problems including autism, attention deficit disorder, irritated bowel syndrome and MS also believe a gluten-free diet will ease their suffering. Add these to an expanding populace who want to avoid gluten simply because they perceive the practice is healthier and the aggregate generates an exploding demand for gluten-free foods.



FLOUR POWER ANALYSIS

MACRONUTRIENT CONTENT OF 100g SAMPLES OF VARIOUS FLOURS					
FOOD	CALORIES(kcal)	TOTAL FAT(g)	CARBOHYDRATE(g)	FIBER(g)	PROTEIN(g)
Dry Pea Flour	365	2	65	26	24
Lentil Flour	353	1	65	33	25
Chickpea Flour	387	7	58	11	22
Peanut Flour	428	22	31	16	34
Potato Flour	357	0	83	6	7
Rice Flour	366	1	80	2	6
Corn Flour	361	4	77	7	7
AP Wheat Flour	364	1	76	3	10
Whole Wheat Flour	339	2	73	12	14
*Source: USDA National Nutrient Database for Standard Reference					

DRY PEA FLOUR ANALYSIS

(Value Per 100 Grams)

Nutrients	Dry Pea	% Daily Value
Calories (kcal)	365.0	
Calories from Fat (kcal)	20.0	
Fat (g)	2.2	3
Saturated Fat (g)	0.0	
Trans Fatty Acid (g)	0.0	
Cholesterol (mg)	0.0	
Sodium (mg)	15.0	1
Carbohydrates (g)	65.0	22
Dietary Fiber (g)	25.5	102
Total Sugars (g)	8.0	
Protein (g)	23.5	47
Calcium (mg)	55.0	6
Iron (mg)	4.4	25
Potassium (mg)	981.0	28
Zinc (mg)	3.0	20
Vitamin A - IU (IU)	149.0	3
Vitamin C (mg)	1.8	3
Thiamin (mg)	0.7	48
Riboflavin (mg)	0.2	13
Niacin (mg)	2.9	14
Vitamin B-6 (mg)	0.2	9
"Folate, total (mcg)"	274.0	69

Compiled from the data provided by USDA database and ESHA Genesis SQL software

CHICKPEA FLOUR ANALYSIS

(Value Per 100 Grams)

Nutrients	Chickpea	% Daily Value
Calories (kcal)	387.0	
Calories from Fat (kcal)	60.0	
Fat (g)	6.69	10
Saturated Fat (g)	.693	3
Trans Fatty Acid (g)	0.0	
Cholesterol (mg)	0.0	
Sodium (mg)	64.0	3
Carbohydrates (g)	57.82	19
Dietary Fiber (g)	10.8	43
Total Sugars (g)	10.85	
Protein (g)	22.39	45
Calcium (mg)	45.0	5
Iron (mg)	4.86	27
Potassium (mg)	846.0	24
Zinc (mg)	2.81	19
Vitamin A - IU (IU)	41.0	1
Vitamin C (mg)	0.0	
Thiamin (mg)	.486	32
Riboflavin (mg)	.106	6
Niacin (mg)	1.762	9
Vitamin B-6 (mg)	.492	25
"Folate, total (mcg)"	437	109

Compiled from the data provided by USDA database and ESHA Genesis SQL software

LENTIL FLOUR ANALYSIS

(Value Per 100 Grams)

Nutrients	Lentil	% Daily Value
Calories (kcal)	353.0	
Calories from Fat (kcal)	10.0	
Fat (g)	1.06	2
Saturated Fat (g)	.156	1
Trans Fatty Acid (g)	0.0	
Cholesterol (mg)	0.0	
Sodium (mg)	6.0	0
Carbohydrates (g)	60.08	20
Dietary Fiber (g)	30.5	122
Total Sugars (g)	2.03	
Protein (g)	25.8	52
Calcium (mg)	56.0	6
Iron (mg)	7.54	42
Potassium (mg)	955.0	27
Zinc (mg)	4.78	32
Vitamin A - IU (IU)	39.0	1
Vitamin C (mg)	4.4	7
Thiamin (mg)	0.873	58
Riboflavin (mg)	0.211	12
Niacin (mg)	2.605	13
Vitamin B-6 (mg)	0.54	27
"Folate, total (mcg)"	479.0	120

Compiled from the data provided by USDA database and ESHA Genesis SQL software

DISCOVER

HOW THE HEART OF HEALTHY FOODS OFFERS GREAT OPTIONS FOR GLUTEN-FREE BAKING

(see formulas on the following pages) For information on
pulse flour suppliers go to www.northernpulse.com

THEY WON'T BELIEVE IT'S G-FREE!

Finally a gluten-free white bread that isn't a brick or rubbery. Pre-cooked pea flour at 29 Baker's % not only delivers neutral flavor but 3 grams of fiber per serving.

Create yummy cinnamon-hazelnut or chocolate chip muffins by taking advantage of the mild nuttiness in pregelatinized lentil and chickpea flours.

Fiber-rich, gluten-free pasta that mimics the texture and mouth feel of the original is as simple as mixing 97% pregelatinized yellow pea flour with about 3% Xanthan gum.

Satisfy the craving for the traditional taste and texture of a pizza crust or pie crust by using about 30 Baker's % precooked yellow pea flour in the formula and pump up the protein and fiber in the process.

Put no-crumble crunch back in a gluten-free cracker and the resilience back in a gluten-free flour tortilla with pulse flours.

Let them eat cake—as in scrumptious pound cake or cake donuts that use pregelatinized pulse flours to produce that telltale texture.

Dare the discriminating palate to detect gluten-free in a delectable chocolate chip cookie that is over 40 Baker's % pregelatinized pea and chickpea flour.





GLUTEN-FREE POUND CAKE

Ingredients	Grams	Baker's %
Butter	155	107.6
Sugar	260	180.6
Salt	1	0.7
Egg yolks (4)	65	45.1
Eggs (2)	100	69.4
Yellow pea flour	32	22.2
Potato starch	67	46.5
Tapioca flour	45	31.3
Brown rice flour	30	20.8
Baking powder	5	3.5
Xanthan gum	2.6	1.8
Whole milk	92	63.9
Vanilla	13.3	9.2
Total Amount	837.9	602.7

Procedure

- Using a whip attachment. Cream butter, sugar and salt. Mix for 1 min on low, scrape, and mix 1 min on high.
- Slowly add egg yolks and whole eggs into the butter mixture. Mix for 1 min, scrape, and whip for another 3 mins.
- Sift together flour blend and baking powder.
- Alternately add milk and flour blend to the creamed mixture.
- Mix for 1 min, scrape, and mix for another 2 mins.
- Pour the mixture to greased bundt pan.
- Bake for about 40 mins at 350°F (convection oven).

Nutrition Facts

Serving Size (76g)

Amount Per Serving			
Calories	260	Calories from Fat 120	
		% Daily Value*	
Total Fat	13g		20%
Saturated Fat	8g		40%
Trans Fat	0g		
Cholesterol	130mg		43%
Sodium	510mg		21%
Total Carbohydrate	37g		12%
Dietary Fiber	1g		4%
Sugars	23g		
Protein	3g		
Vitamin A 10% • Vitamin C 0%			
Calcium 10% • Iron 2%			

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less Than	65g	80g
Saturated Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:

 Fat 9 • Carbohydrate 4 • Protein 4

GLUTEN-FREE CINNAMON HAZELNUT MUFFIN

Ingredients	Grams	Baker's %	Volume
Sugar	131	98	1/2 cup 2 tbsp
Butter	113	85	1/2 cup
Eggs (2)	100	75	2 eggs
Heavy cream	60	45	1/4 cup
Lentil flour	37	28	1/4 cup
Chickpea flour	25	19	1/4 cup
Potato starch	41	31	1/4 cup
Tapioca flour	30	22	1/4 cup
Salt	0.6	0.4	pinch
Baking powder	4.4	3.3	1 tsp
Cinnamon	1.0	0.7	1 tsp
Chopped hazelnut	60	45	1/2 cup 2 tbsp
Total Amount	603	452	

Procedure

- Make sure that all the ingredients are at room temperature.
- Using a paddle attachment, cream sugar and butter on speed 8 for 30 seconds, scrape and mix for 1 min.
- Scrape the bowl. Add eggs. Mix for 1 min on speed 8.
- Scrape the bowl. Add heavy cream. Mix for 1 min on speed 8.
- Add flour, baking powder, salt and cinnamon.
- Mix for 30 seconds, scrape, and mix for 30 seconds.
- Fold in hazelnuts.
- Scoop the dough into a muffin liner. Fill it to the rim.
- Bake at 350°F for 22 mins in convection oven.

Nutrition Facts			
Serving Size (86g)			
Amount Per Serving			
Calories	360	Calories from Fat 200	
		% Daily Value*	
Total Fat	22g		34%
Saturated Fat	12g		60%
Trans Fat	0g		
Cholesterol	105mg		35%
Sodium	130mg		5%
Total Carbohydrate	36g		12%
Dietary Fiber	3g		12%
Sugars	20g		
Protein	5g		
Vitamin A 15% • Vitamin C 2%			
Calcium 4% • Iron 6%			
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:			
	Calories	2,000	2,500
Total Fat	Less Than	65g	80g
Saturated Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat 9 • Carbohydrate 4 • Protein 4			



GLUTEN-FREE CAKE DONUT

Ingredients	Grams	Baker's %
Yellow pea flour	68	25.2
Chickpea flour	68	25.2
Tapioca flour	67	24.8
Potato starch	67	24.8
Xanthan gum	5.4	2.0
Baking powder	13	4.8
Sugar	86	31.9
Salt	4.1	1.5
Nutmeg	2	0.7
Nonfat dry milk	15	5.6
Butter	57	21.0
Egg (1)	50.2	18.6
Water	150	55.6
Total Amount	652.45	241.6

Procedure

1. Combine flours, starch, gum, and baking powder. Set aside.
2. Mix together, sugar, salt, nutmeg and non fat dry milk
3. Add and mix in butter.
4. Add egg and mix.
5. Add water and mix.
6. Add dry ingredients to the wet ingredients.
7. Sheet the dough to about 3/4 inch thickness.
8. Cut the dough with donut cutter.
9. Fry the donut in oil at 193°-196°F for 1 min on each side.
10. Drain on a paper towel.

Nutrition Facts			
Serving Size (60g)			
Amount Per Serving			
Calories 170		Calories from Fat 45	
		% Daily Value*	
Total Fat	5g		8%
Saturated Fat	3g		15%
Trans Fat	0g		
Cholesterol	30mg		10%
Sodium	300mg		13%
Total Carbohydrate	29g		10%
Dietary Fiber	3g		12%
Sugars	10g		
Protein 4g			
Vitamin A 4%	•	Vitamin C 0%	
Calcium 6%	•	Iron 4%	
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:			
	Calories	2,000	2,500
Total Fat	Less Than	65g	80g
Saturated Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat 9 • Carbohydrate 4 • Protein 4			

GLUTEN-FREE PANCAKES

Ingredients	Grams	Baker's %
Eggs (2)	100	63.3
Melted butter	56	35.4
Milk	170	107.6
Yellow split pea flour	38	24.1
Corn flour	15	9.5
Tapioca flour	60	38.0
Brown rice flour	30	19.0
Potato starch	15	9.5
Baking powder	5.3	3.4
Salt	4.2	2.7
Xanthan gum	1.2	0.8
Vanilla extract	4.2	2.7
Sugar	83	52.5
Cider vinegar	3.2	2.0
Total Amount	585.1	370.3

Procedure

1. Combine and mix (whisk) egg, butter, and milk in a large bowl.
2. Sift in dry ingredients. Mix well.
3. Add in apple cider vinegar and vanilla at the end of mixing. Mix for 30 seconds.
4. Cook the pancake batter on a nonstick pan at low-medium heat until golden brown.
5. Serve warm.

Nutrition Facts			
Serving Size (100g)			
Amount Per Serving			
Calories 250		Calories from Fat 90	
		% Daily Value*	
Total Fat	11g		17%
Saturated Fat	7g		35%
Trans Fat	0g		
Cholesterol	95mg		32%
Sodium	420mg		18%
Total Carbohydrate	39g		13%
Dietary Fiber	2g		8%
Sugars	16g		
Protein	5g		
Vitamin A 8%	•	Vitamin C 0%	
Calcium 6%	•	Iron 4%	
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:			
	Calories	2,000	2,500
Total Fat	Less Than	65g	80g
Saturated Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat 9 • Carbohydrate 4 • Protein 4			



GLUTEN-FREE WHITE BREAD

Ingredients	Grams	Baker's %
Canola oil	80	15
Water	560	105
Egg yolk (by weight)	15	3
Egg white (by weight)	125	23
Yellow pea flour	152	29
Potato starch	180	34
White rice flour	200	38
Xanthan gum	14	3
Salt	6	1
Yeast	13	2
Sugar	50	9
Baking powder	20	4
Vinegar	37	7
Total Amount	1452	273

Procedure

1. Mix water and gum until the gum is dissolved.
2. Add oil and eggs to the water mixture. Mix until well incorporated.
3. Sift dry ingredients to the wet ingredients. Mix until the dough is smooth.
4. Proof the dough for 30 mins in a warm humid environment.
5. Bake at 340°F for 1hr and 10 mins.

Nutrition Facts

Serving Size (70g)

Amount Per Serving		
Calories	140	Calories from Fat 40
		% Daily Value*
Total Fat	4.5g	7%
Saturated Fat	0g	0%
Trans Fat	0g	
Cholesterol	10mg	3%
Sodium	230mg	10%
Total Carbohydrate	24g	8%
Dietary Fiber	3g	12%
Sugars	3g	
Protein	3g	
Vitamin A 0%	•	Vitamin C 2%
Calcium 2%	•	Iron 2%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less Than	65g	80g
Saturated Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:

Fat 9 • Carbohydrate 4 • Protein 4

GLUTEN-FREE CHOCOLATE CHIP COOKIES

Ingredients	Grams	Baker's %
Butter, softened	170	57.3
Brown sugar	112	37.7
Sugar	112	37.7
Eggs (by weight)	114	38.4
Vanilla	8	2.7
Yellow pea flour	64	21.7
Chickpea flour	64	21.7
Rice flour	52	17.6
Potato starch	87	29.3
Tapioca flour	29	9.8
Xanthan gum	3.8	1.3
Gluten free baking powder	5	1.8
Baking soda	6	2.1
Salt	3	1.1
Semisweet chocolate chips	280	94.3
Total Amount	595	201

Procedure

1. Cream butter and sugar. Add eggs and vanilla.
2. Sift together all the dry ingredients. Gradually add the dry ingredients to wet ingredients.
3. Mix at medium speed for 1 min.
4. Stir in chocolate chips.
5. Drop a spoonful of dough onto a greased cookie sheet.
6. Flatten the top of the dough slightly.

* The dough spreads very little, flattening is necessary.

7. Bake for 8-10 mins at 375°F in the convection oven or until light golden brown.
8. Cool on the cookie sheet.

Nutrition Facts

Serving Size (50g)

Amount Per Serving			
Calories	210	Calories from Fat 90	
		% Daily Value*	
Total Fat	10g		15%
Saturated Fat	7g		35%
Trans Fat	0g		
Cholesterol	40mg		13%
Sodium	160mg		7%
Total Carbohydrate	28g		9%
Dietary Fiber	2g		8%
Sugars	18g		
Protein	3g		
Vitamin A 4%		Vitamin C 0%	
Calcium 2%		Iron 2%	

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less Than	65g	80g
Saturated Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:

Fat 9 • Carbohydrate 4 • Protein 4



GLUTEN-FREE PIZZA CRUST

Ingredients	Grams	Baker's %
Water	373	74.9
Oil	50	10.0
Egg (1)	50	10.0
Xanthan gum	3.5	0.7
White rice	197	39.5
Yellow pea flour	138	27.7
Tapioca flour	105	21.1
Potato starch	58	11.7
Yeast	3	0.6
Salt	7	1.4
Total Amount	508	102

Procedure

1. Using whip attachment, combine water, oil, and egg together.
2. Mix xanthan gum at high speed for 30 seconds.
3. Sift in all the dry ingredients.
4. Ferment the dough for 45 mins.
5. After 45 mins, mix the dough at medium speed for 30 seconds.
6. Grease cake pan or pie pan with oil. Spread the dough on to the prepared pan.
7. Proof the crust for 15 mins in a warm humid environment.
8. Parbake the crust for 15 mins at 375°F.
9. Put on the toppings. Completely bake the pizza for 8-10 mins.

Nutrition Facts			
Serving Size (100g)			
Amount Per Serving			
Calories 230		Calories from Fat 50	
		% Daily Value*	
Total Fat	6g		9%
Saturated Fat	1g		5%
Trans Fat	0g		
Cholesterol	20mg		7%
Sodium	290mg		12%
Total Carbohydrate	41g		14%
Dietary Fiber	4g		16%
Sugars	1g		
Protein	5g		
Vitamin A 0%	•	Vitamin C 2%	
Calcium 2%	•	Iron 4%	
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:			
	Calories	2,000	2,500
Total Fat	Less Than	65g	80g
Saturated Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat 9 • Carbohydrate 4 • Protein 4			

GLUTEN-FREE FLOUR TORTILLA

Ingredients	Grams	Baker's %
Tapioca flour	30	19
Potato starch	50	31
Brown rice flour	40	25
Chickpea flour	40	25
Salt	3	2
Xanthan gum	6	4
Whey powder	5	3
Canola oil	26	16
Vinegar	5	3
Water	100	63
Total Amount	305.4	191

Procedure

1. Sift all the dry ingredients. Combine dry ingredients with canola oil.
2. Add vinegar and water to the ingredients.
3. Knead the dough using mixer or hands until smooth.
4. Divide the dough into 5 pieces (about 60g/ piece).
5. Sheet the dough very thin to a round shape on a wax paper (~2-3mm).
6. Cook the dough on a hot skillet. The skillet should be about 392°F. *The dough should be cooked 30 secs on one side.
7. Flip the dough and cook for another 30 seconds.
8. Flip the last time and cook for another 30 seconds or until it is fully inflated.

Nutrition Facts			
Serving Size (61g)			
Amount Per Serving			
Calories 160		Calories from Fat 50	
			% Daily Value*
Total Fat 6g		9%	
Saturated Fat 0g		0%	
Trans Fat 0g			
Cholesterol 0mg		0%	
Sodium 250mg		10%	
Total Carbohydrate 27g		9%	
Dietary Fiber 2g		8%	
Sugars 2g			
Protein 2g			
Vitamin A 0%		Vitamin C 0%	
Calcium 2%		Iron 4%	
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:			
		Calories	2,000 2,500
Total Fat	Less Than	65g	80g
Saturated Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat 9 • Carbohydrate 4 • Protein 4			



GLUTEN-FREE PIE CRUST

Ingredients	Grams	Baker's %	Volume
White rice flour	108	31.6	2/3 cup
Tapioca flour	85	24.9	2/3 cup
Yellow pea flour	112.8	33.0	1/3 cup
Potato starch	35.6	10.4	1/4 cup
Whey	6	1.8	1 tbsp
Sugar	23.6	6.9	2 tbsp
Salt	17.4	5.1	1 tsp
Cold butter	165.6	48.5	12 tbsp
Egg (1)	50	14.6	1 egg
Ice water	18	5.3	1 tbsp
White vinegar	25	7.3	1 tbsp
Total Amount	647	189.5	

Procedure

1. Sift all the dry ingredients
2. Cut butter into the dry ingredients
3. Mix together egg, ice water, and white vinegar.
4. Blend wet ingredients to the dry to form a dough.
5. Sheet out the pie to about 1/8 inch thickness on a wax paper.
6. Sheeted pie crust can be used in any pie recipes.

Nutrition Facts			
Serving Size (54g)			
Amount Per Serving			
Calories 210		Calories from Fat 100	
		% Daily Value*	
Total Fat	12g		18%
Saturated Fat	8g		40%
Trans Fat	0g		
Cholesterol	50mg		17%
Sodium	570mg		24%
Total Carbohydrate	25g		8%
Dietary Fiber	3g		12%
Sugars	3g		
Protein 4g			
Vitamin A 8%		•	Vitamin C 0%
Calcium 2%		•	Iron 2%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:			
	Calories	2,000	2,500
Total Fat	Less Than	65g	80g
Saturated Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat 9 • Carbohydrate 4 • Protein 4			

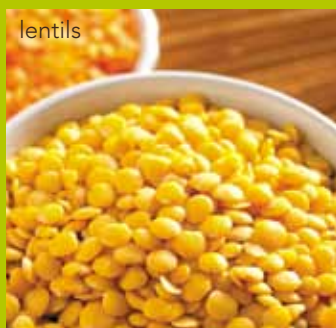
GLUTEN-FREE WHOLESOME CRACKER

Ingredients	Grams	Baker's %
Corn flour	40	34.8
Corn starch	16	13.9
Potato starch	18	15.7
Lentil flour	41	35.7
Minced dry onion	0.7	0.6
Salt	3.0	2.6
Italian seasoning	0.07	0.1
Water	83	72.2
Oil	28	24.3
Coarsely chopped sunflower seed	16	13.9
Sesame seeds	10	8.7
Total amount	255.8	222.4

Procedure

1. Sift dry ingredients together
2. Combine oil and water together.
3. In a small mixer, using a paddle attachment, add dry ingredients, follow by wet ingredients.
4. Mix at medium speed for 2 mins.
5. Combine sesame and chopped sunflower seeds together.
6. Dip the dough in to the seeds on both sides.
7. Sheet the dough onto a cookie sheet. Sprinkle the rest of the seeds on to the dough. Sheet the dough as thin as 1mm thickness.
8. Bake 355°F for 20 mins in a convection oven.

Nutrition Facts			
Serving Size (37g)			
Amount Per Serving			
Calories 120	Calories from Fat 50		
		% Daily Value*	
Total Fat 6g			9%
Saturated Fat 0.5g			3%
Trans Fat 0g			
Cholesterol 0mg			0%
Sodium 180mg			8%
Total Carbohydrate 13g			4%
Dietary Fiber 2g			8%
Sugars 0g			
Protein 3g			
Vitamin A 0%	•	Vitamin C 0%	
Calcium 0%	•	Iron 15%	
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:			
	Calories	2,000	2,500
Total Fat	Less Than	65g	80g
Saturated Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat 9 • Carbohydrate 4 • Protein 4			



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Association
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www.northernpulse.com

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& Lentil Council
Moscow, Idaho
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