

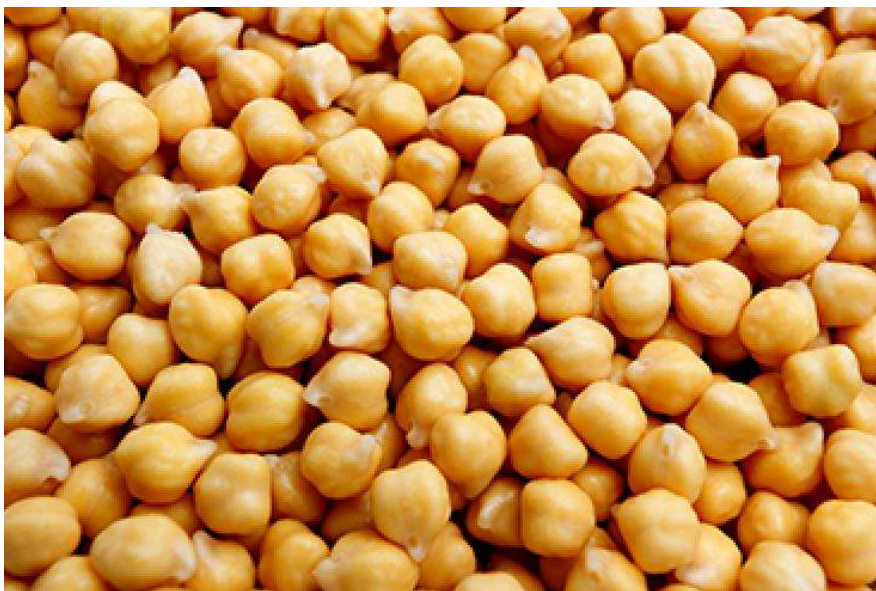


Tortilla Industry Association  
Technical Conference  
November 11, 2025



# Chickpea

Chickpea flour is inherently gluten-free, and adds new dimensions of flavor



## Flavor

Mild, nutty, slightly sweet – absorb flavors of ingredients they are cooked with



## Uses

Bars, snacks, side dishes, pasta, cookies, bowls, crackers, hummus, soups, breads, chips, pretzels, salads



## Nutritional

Chickpea flour is a good source of fiber; whole chickpeas are a good source of protein<sup>1</sup>

AVAILABLE



<sup>1</sup>Based on 35g RACC for whole chickpeas

## Slide 2

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- TT1** GFCO Gluten-Free certification - recommend removing. This is not accurate of whole chickpeas (inherently GF), only chickpea flour certified.  
Tess Tierney, 2025-11-07T15:09:11.153
- JN1 0** I've removed that certification, and indicated that chickpea flour is inherently gluten-free  
Jason Neal, 2025-11-07T17:39:22.194
- TT2** Good source of protein - only accurate of whole chickpeas, not chickpea flour (based on RACCs). Recommend adding claim footer with 35g serving size for whole chickpeas.  
Tess Tierney, 2025-11-07T15:12:21.296
- JN2 0** I've made that reference to whole chickpeas, and included the 35g serving size  
Jason Neal, 2025-11-07T17:40:06.863

# Chickpea

Chickpeas are versatile in gluten-free products and a good source of fiber



Per 100 g

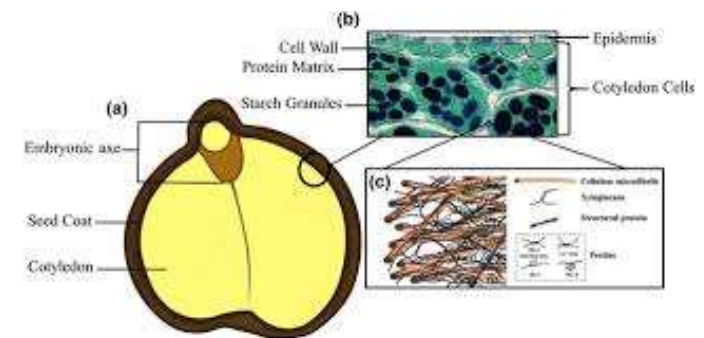
**383**  
CALORIES

**21.3 grams**  
PROTEIN

**60.4 grams**  
CARBOHYDRATES

**12.2 grams**  
FIBER

**6.27 grams**  
FAT



### Slide 3

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**TT1** Confirmed - chickpea nutritionals listed match USDA NDB #100311 values.  
Tess Tierney, 2025-11-07T15:05:44.867

**TT2** Confirmed - whole chickpeas and chickpea flour are good source of fiber (per RACCs).  
Tess Tierney, 2025-11-07T15:06:32.790

# Lentil

Lentils can add texture, richness and complexity to many recipes



## Flavor

Mild, earthy flavor; slightly nutty taste



## Uses

Muffins, pizza crusts, pasta, plant-based applications



## Nutritional

Good source of iron and fiber

AG1



AVAILABLE



## Slide 4

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- AG1** Is this claim substantiated?  
Anna Goldman, 2025-11-04T19:47:02.876
- JN1 0** This tracks what is in our Gluten Free Flour sell sheet  
Jason Neal, 2025-11-05T23:19:31.202
- TT2** Confirmed - GFCO GF certification for lentil products at Harvey.  
Tess Tierney, 2025-11-07T15:15:36.939

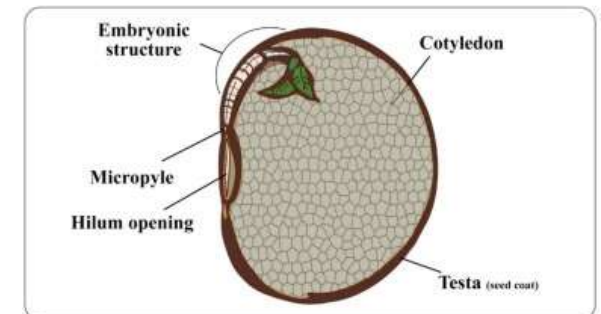
# Lentil

Flat, lens-shaped seeds are a good source of iron and fiber

AG1



Per 100 g
<b>352</b> CALORIES
<b>24.6 grams</b> PROTEIN
<b>63.4 grams</b> CARBOHYDRATES
<b>10.7 grams</b> FIBER
<b>1.06 grams</b> FAT
<b>6.51 milligrams</b> IRON



## Slide 5

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- AG1** Is this claim substantiated?  
Anna Goldman, 2025-11-04T19:46:14.548
- JN1 0** This tracks what is in our Gluten Free Flour sell sheet  
Jason Neal, 2025-11-05T23:19:47.856
- JN1 1** I'll look into this claim  
Jason Neal, 2025-11-05T23:24:22.287
- TT1 2** Confirmed - Lentils are a good source of iron and fiber, based on Ancient Grain Strategy FY24 evaluation.  
Tess Tierney, 2025-11-07T15:23:38.366
- TT2** What USDA nutritional values were used for lentil slide? Our product nutritionals mostly reference NDB #16069 Lentils, raw. <https://fdc.nal.usda.gov/food-details/172420/nutrients>  
Tess Tierney, 2025-11-07T15:25:17.353
- JN2 0** These numbers came from a previous lentil presentation - I've updated to include USDA information linked here  
Jason Neal, 2025-11-07T18:18:34.366

# Sorghum

Polished seeds are a whole grain while more processing can be achieved by pearling



## Flavor

Sweet taste with hints of corn and wheat with a light grassy note



## Uses

Substitute for rice fours in gluten-free development. Popular in noodle production and Indian breads like roti.



## Nutritional

Inherently gluten-free, whole grain, intact seed is a good source of fiber



AVAILABLE



AG1

TT2

## Slide 6

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- AG1** Is this claim substantiated?  
Anna Goldman, 2025-11-04T19:48:21.501
- TT1 0** Confirmed. Sorghum is inherently gluten-free and whole grain (intact seed and flour). Intact seed sorghum is a good source of fiber (per 45g serving/RACC).  
Tess Tierney, 2025-11-07T15:37:47.904
- TT2** GFCO GF certification and KOF-K kosher logos could be listed, if desired.  
Tess Tierney, 2025-11-07T15:56:45.328
- JN2 0** Those have been included  
Jason Neal, 2025-11-07T17:54:53.003

# Sorghum

Starchy round seed which is versatile and easy to use

AG1



Per 100 g

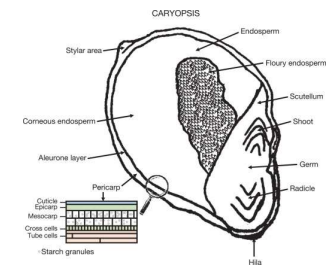
**329**  
CALORIES

**10.6 grams**  
PROTEIN

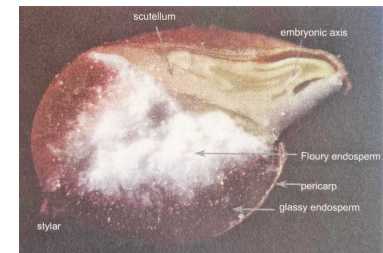
**72.1 grams**  
CARBOHYDRATES

**6.7 grams**  
FIBER

**3.46 grams**  
FAT



SEM cross-section of sorghum



Source: Belton and Taylor, 2002

## Slide 7

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- AG1** Sorghum does not qualify for a good source of protein nutrient content claim based on current nutritional data and PDCAAS found in literature.  
Anna Goldman, 2025-11-04T17:05:44.391
- JN1 0** Good callout, I'll take that claim out  
Jason Neal, 2025-11-05T22:59:53.131
- TT2** What USDA values were used for sorghum slide? Our nutritionals (and claim substantiation) reference NDB #20067 Sorghum grain. <https://fdc.nal.usda.gov/food-details/169716/nutrients>  
Tess Tierney, 2025-11-07T15:40:44.254
- JN2 0** These values came from a previous sorghum presentation - I've updated to replace with values linked here  
Jason Neal, 2025-11-07T18:24:35.105

# Millet

Cream to pale-yellow flour. Pink hues possible but more rare.



## Flavor

Nutty and grassy and bitter



## Uses

Bird Seed...pastas, crackers, cookies.



## Nutritional

Good source of fiber, thiamin<sup>1</sup> and niacin<sup>1</sup>

AG1



AVAILABLE



<sup>1</sup>Based on 45g RACC for intact seed millet

## Slide 8

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- AG1** Are these citing to something?  
Anna Goldman, 2025-11-04T19:49:16.220
- JN1 0** I went back to the Ancient Grains 101 deck where this slide appears - those sources are not present there, either. I'll see if I can find other sources for these.  
Jason Neal, 2025-11-05T23:08:28.209
- TT1 1** Revise to "Good source of fiber, thiamin, and niacin" (based on 45g RACC for intact seed millet) - approved Ancient Grain Strategy FY24 claims.  
Tess Tierney, 2025-11-07T15:48:57.762
- TT2** GFCO GF certification and KOF-K kosher logos could be listed, if desired.  
Tess Tierney, 2025-11-07T15:43:47.211

# Millet

Starchy round seed that is pearled and polished to different degrees

TT2



Per 100 g

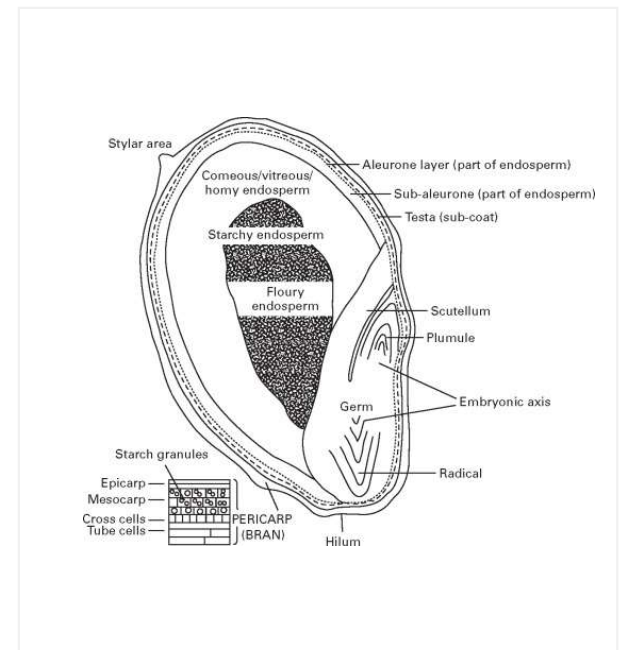
**378**  
CALORIES

**11 grams**  
PROTEIN

**72.8 grams**  
CARBOHYDRATES

**8.5 grams**  
FIBER

**4.2 grams**  
FAT



## Slide 9

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**TT1** Confirmed - millet nutritionals listed match USDA NDB #20031 values.

Tess Tierney, 2025-11-07T15:50:58.904

**TT2** What is source for this claim?

Tess Tierney, 2025-11-07T15:52:08.548

**JN2 0** This comes from an older millet presentation - I've taken it out

Jason Neal, 2025-11-07T17:07:18.351

# Gluten-free eating increasing with younger consumers

A small portion (1–2%) of adult consumers have a medically-confirmed need to avoid gluten, but nearly one-quarter of consumers eat gluten-free out of choice, led by younger consumers (18 – 34).

# 23%

of U.S. consumers claim that they eat gluten-free *out of choice* with intent

~94%: incidence of Gluten-Free eating that is done out of 'choice' versus 'medical need'<sup>1</sup>

**Participation climbs to 37% among consumers between 18 – 34**

(the group that *also* happens to be the most frequent soft-shell tortilla eaters, over-indexing on monthly consumption by 21%)

# Soft-Shell Tortilla products that offer in-demand benefits and ingredients are outpacing the category

Total Category Unit Sales were Down -1.4% in the Last 52 Weeks

Characterstic <sup>1</sup>	Units (m)	Share	Trend
Excellent Source of Fiber Qualified	199.0	17.1%	+2.9%
Organic Certification Stated	19.4	1.7%	+37.6%
Contains Chickpeas (any) Qualified	1.5	0.1%	+127.4%
Excellent Source Of Protein Qualified	1.0	0.1%	+50.1%

Ardent Mills proprietary analysis; Nielsen/Byzzer, Total FMCG, 52 weeks through October 11, 2025; 1- as captured and classified by Nielsen



**+22.4%**

Year-over-year increase in social media discussion about:

*Tortillas<sup>2</sup>*



**Ardent Mills**

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# Gluten-free innovation is up across F&B in 2025 (ytd), especially in Tortillas.

**Manufacturer Innovation Activity 2025 (ytd) vs 2024: Share of New Products with Gluten-Free Claim**

Total F&B Products

**+7.3%**

Tortillas

**+28.7%**

## A Few Takeaways

- ◆ Tortillas remain a consumer favorite, increasingly so
- ◆ Consumer participation in gluten-free eating behavior has reached scale and is still growing
- ◆ Ingredients and eating experience matter with gluten-free foods – a lot
- ◆ Gluten-Free innovation activity within tortillas is above-average, and a range of grains and pulses are supporting the effort

**+127%**

Unit sales of Soft-Shell Tortillas that include chickpea (any) as an ingredient in the last 52 weeks<sup>1</sup>

# Developing Tortillas

- Work with your R&D team to develop a formula that works with your process.
- Be willing to adjust and determine the best formulation on your line as you work with gluten free products
- Note there may be color differences depending on what products you use by percentages



# Gluten Free Applications For Tortilla

- There are three needs to create structure for a gluten free tortilla
- Protein
- Starch
- Gum



# Mixing



- Less Mix and More Water – Adjusting water while mixing to understand capabilities of dough
- Feel dough to see when it is ready
- Particle size is very important when it comes to good dough feel and proper textures for doughs

# Floor Time



- More floor time is a positive to the ability of the dough to relax and be used through processing.
- Look at your process to see how floor time may be slightly longer with Gluten free. Can you give it a couple more minutes

# Processing



- Need a bigger tortilla disk to go thru the process.
- Lack of gluten structure allows for these products to be torn easier going thru processing
- Reduce press pressure for gluten free options

## Clean Label Gluten Free Tortillas

- Home Usage – Heat and serve
- Tortilla will be stiff and need to be heated up to get pliability to make the tortilla proper for home use



# Flavor Profiling



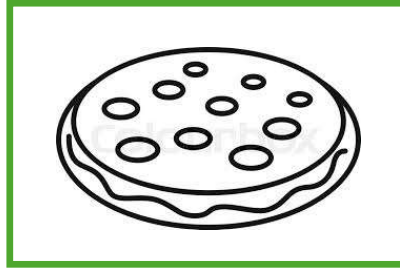
- Working with grains to understand the flavor profiles and what customers may enjoy.
- Blending grains together can provide flavors that are good for the tortillas you are looking to make.

# Formulating with Ancient Grains



## Crumb Structure Gummy

- **Issue:** Gummy/dense texture
- **Solutions:** Vary grain flour & blends; Optimize blend ratios: add proteins, adjust starch ratios; Increase leavening.



## Spread / Thickness

- **Issue:** Differences in spread & doming.
- **Solutions:** Vary grain flour & blends; Increase liquids (water, oil, etc.) & sugar



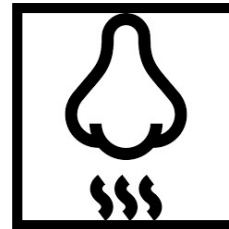
## Amount of Browning

- **Issue:** Varying browning
- **Solutions:** Vary grain flour & blends; add or change sugar types. Introduce fermentation



## Processing Issues

- **Issue:** Viscosity affect processing Hydration. Batter thickens over time.
- **Solutions:** Vary grain flour & blends; Vary gum type & level. Adjust binders.



## Aroma / Flavor

- **Issue:** Low &/or off aroma & flavor
- **Solutions:** Vary grain flour & blends; add flavoring or flavor maskers. Roasting and toasting