



# Corn Masa in the US: Supply Chain, Market, and Fortification

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# US and Canada amended enrichment standards in 1996



All enriched grain products had to include folic acid (vitamin B9) by Jan. 1, 1998.<sup>1</sup>

# Why does it matter?

Many brain  
and spine  
birth defects  
are  
preventable...

...if women consume  
400 micrograms of  
folic acid daily before  
pregnancy and 28  
days after conception<sup>2</sup>

# These neural tube defects (NTDs) are serious<sup>2</sup>

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## **ANENCEPHALY**

Affects the brain

Always fatal



## **SPINA BIFIDA**

Affects the spine

Can cause death or lifelong disability







Adding folic acid to  
foods in the US  
prevents about  
**1,300** NTDs every  
year<sup>3</sup>

Photo credit: Grider et al. 2018. iStockphoto

Annual savings  
from preventing  
spina bifida in the  
United States:


\$603 million<sup>4</sup>

Photo credit: Tracy Lee Carroll

<sup>4</sup> Grosse et al. 2016







**US Hispanics experience 14% more cases of spina bifida and 34% more cases of anencephaly than white Americans<sup>5</sup>**

## Corn masa flour fortification:

- ❖ FDA approval of voluntary fortification of corn masa flour in 2016<sup>6</sup>
- ❖ No significant changes in NTD rates since 2016<sup>7</sup>
- ❖ No widespread fortification of corn masa<sup>8</sup>
- ❖ Studies predict between 127 and 235 NTDs could be prevented annually with folic acid fortification of corn masa<sup>9</sup>

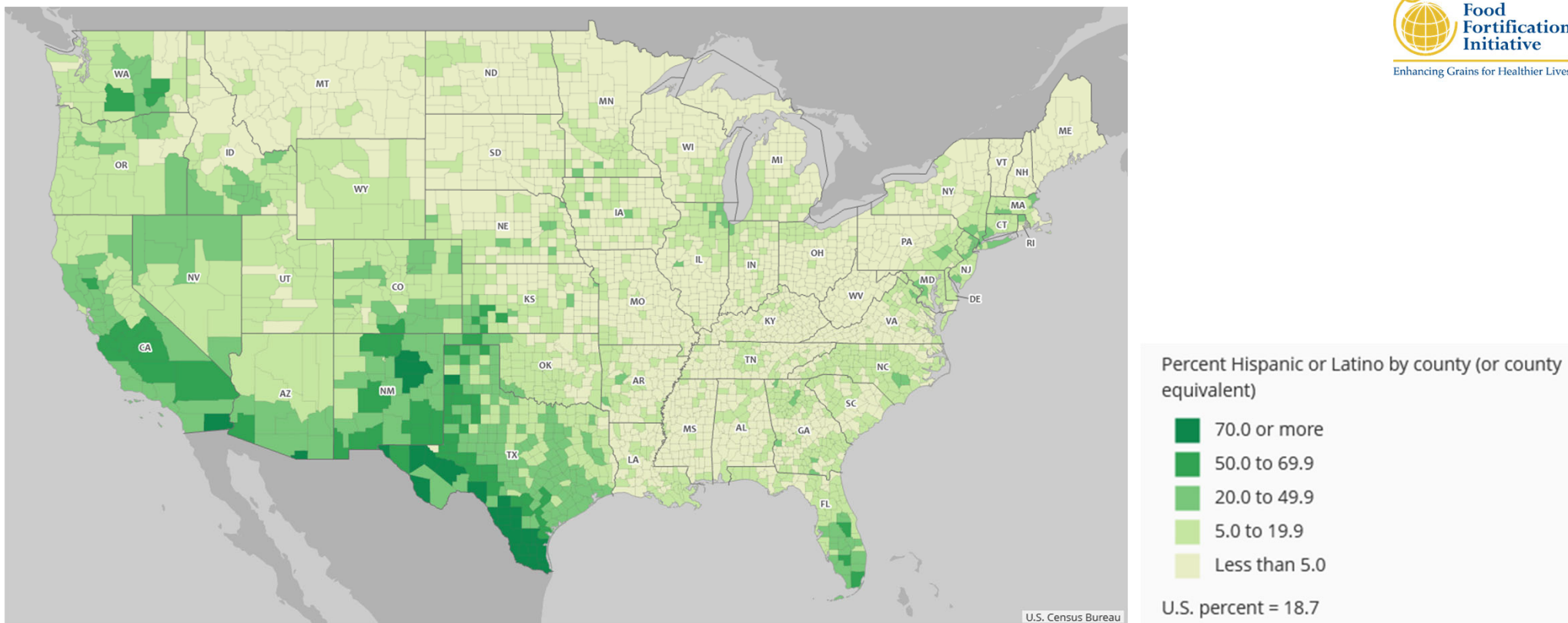
<sup>5</sup> Stallings et al 2024

<sup>6</sup> FDA Rule 2016

<sup>7</sup> Khalid et al 2023

<sup>8</sup> CSPI 2023

<sup>9</sup> Wang et al 2024



# Hispanic Population in the US

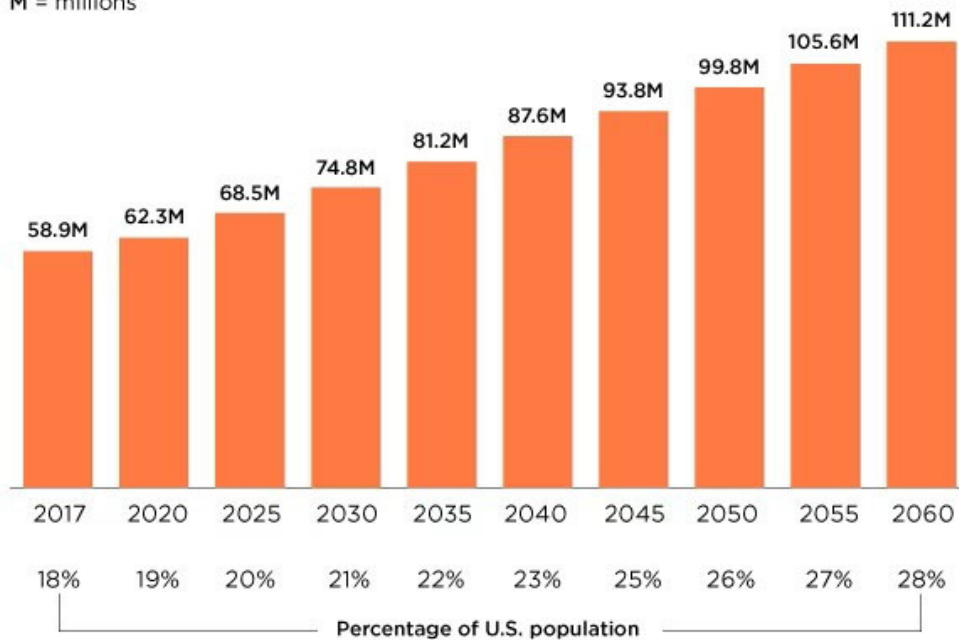
Source: US Census Bureau, 2020 data



# Hispanic Population to Reach 111 Million by 2060

Projected Hispanic Population 2020 to 2060

M = millions



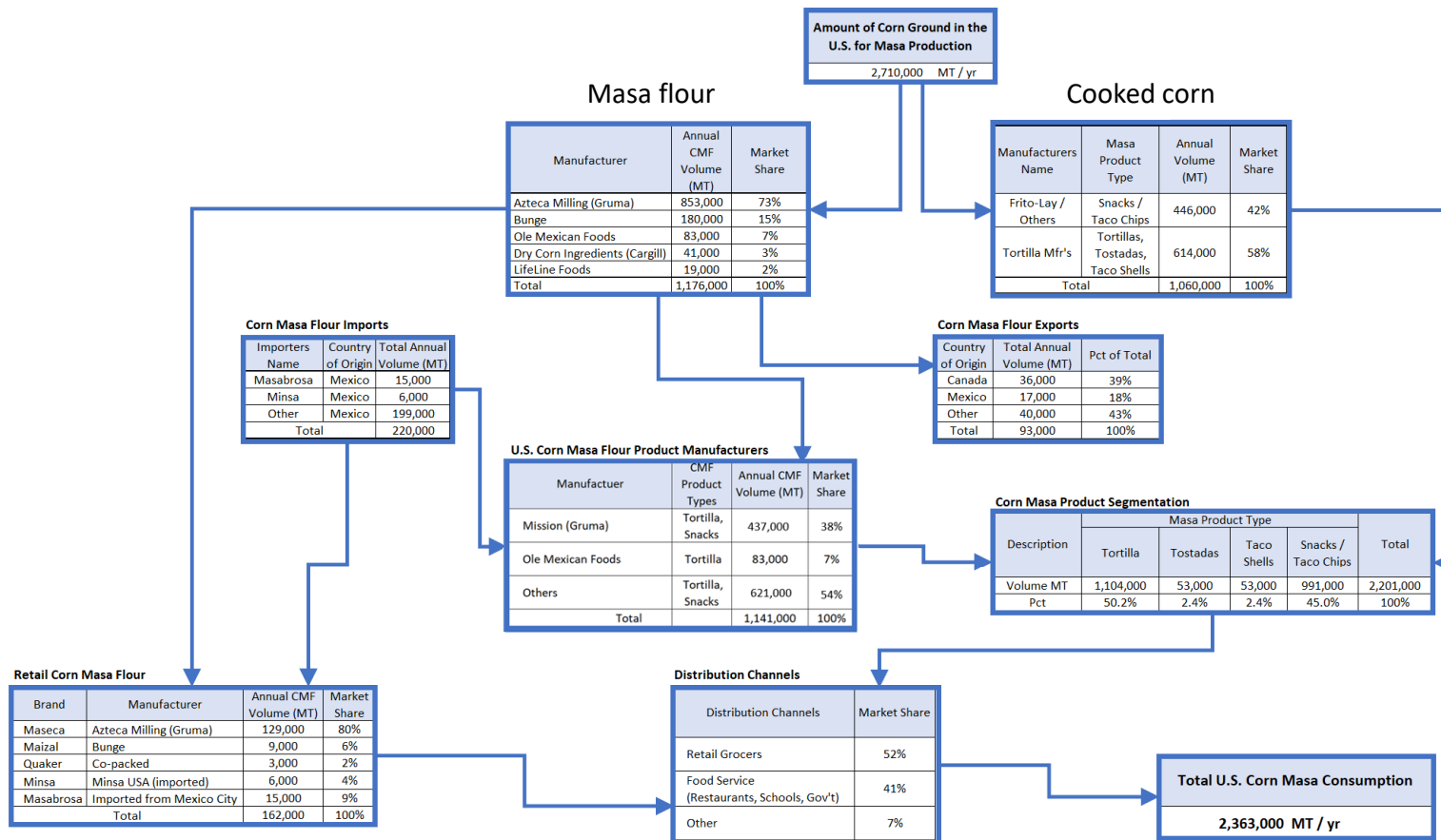
United States<sup>®</sup>  
**Census**  
Bureau

U.S. Department of Commerce  
Economics and Statistics Administration  
U.S. CENSUS BUREAU  
[census.gov](https://www.census.gov)

Source: 2017 National Population Projections and  
Vintage 2017 Population Estimates  
[www.census.gov/popest](https://www.census.gov/popest) and  
[www.census.gov/programs-surveys/popproj.html](https://www.census.gov/programs-surveys/popproj.html)

## Hispanic Population Proportions and Trend

# 2022-23 Masa Industry Supply Chain



Full report:



Source: Masa industry subject matter experts

# Masa Manufacturing

## 52% MASA FLOUR/DRY CMF

Manufacturer	Annual CMF Volume (MT)	Market Share
Azteca Milling (Gruma)	853,000	73%
Bunge	180,000	15%
Ole Mexican Foods	83,000	7%
Dry Corn Ingredients (Cargill)	41,000	3%
LifeLine Foods	19,000	2%
<b>Total</b>	<b>1,176,000</b>	<b>100%</b>

## 48% COOKED CORN/WET MASA

Manufacturers Name	Masa Product Type	Annual Volume (MT)	Market Share
Frito-Lay / Others	Snacks / Taco Chips	446,000	42%
Tortilla Mfr's	Tortillas, Tostadas, Taco Shells	614,000	58%
<b>Total</b>		<b>1,060,000</b>	<b>100%</b>



# Imports

- The US imports 220,000 tons of maize flour from Mexico<sup>10</sup>

## Corn Masa Flour Imports

Importers Name	Country of Origin	Total Annual Volume (MT)
Masabrosa	Mexico	15,000
Minsa	Mexico	6,000
Other	Mexico	199,000
Total		220,000

# Exports

- Total exports of maize flour are 93,000 metric tons<sup>10</sup>
- 57% of maize flour exports are to Canada and Mexico
  - We assume that the exports to these countries are CMF

## Corn Masa Flour Exports

Country of Origin	Total Annual Volume (MT)	Pct of Total
Canada	36,000	39%
Mexico	17,000	18%
Other	40,000	43%
Total	93,000	100%

<sup>10</sup> Source: USA International Trade Commission, 2021 data

### U.S. Corn Masa Flour Product Manufacturers

Manufacturer	CMF Product Types	Annual CMF Volume (MT)	Market Share
Mission (Gruma)	Tortilla, Snacks	437,000	38%
Ole Mexican Foods	Tortilla	83,000	7%
Others	Tortilla, Snacks	621,000	54%
Total		1,141,000	100%



# US Corn Masa Flour Product Manufacturers

# Corn Masa Product Segmentation

## Retail Corn Masa Flour

Brand	Manufacturer	Annual CMF Volume (MT)	Market Share
Maseca	Azteca Milling (Gruma)	129,000	80%
Maizal	Bunge	9,000	6%
Quaker	Co-packed	3,000	2%
Minsa	Minsa USA (imported)	6,000	4%
Masabrosa	Imported from Mexico City	15,000	9%
Total		162,000	100%

## Corn Masa Product Segmentation

Description	Masa Product Type				Total
	Tortilla	Tostadas	Taco Shells	Snacks / Taco Chips	
Volume MT	1,104,000	53,000	53,000	991,000	2,201,000
Pct	50.2%	2.4%	2.4%	45.0%	100%



## Distribution Channels

Distribution Channels	Market Share
Retail Grocers	52%
Food Service (Restaurants, Schools, Gov't)	41%
Other	7%

Source: Tortilla Industry Association 2021

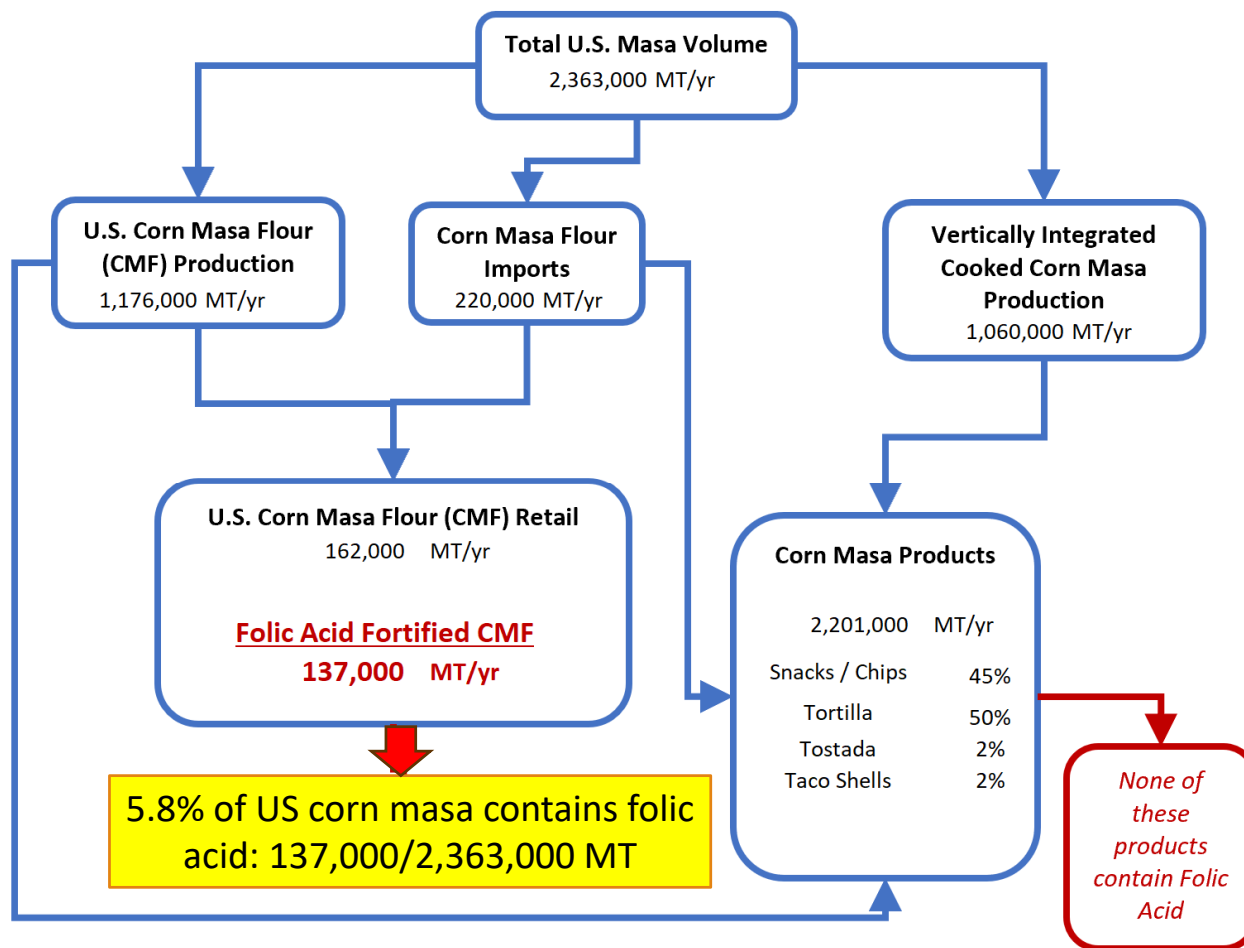
## Retail Distribution

Category	Description	Market Share
Grocery	Kroger, Southwestern Grocery, Albertsons	42.5%
Walmart	Walmart	22.6%
Drug	CVS, Rite Aid, Walgreens	4.2%
Club	BJ, Sams club	4.1%
Mass	Kmart Target	6.1%
Dollar	Dollar General, Family Dollar	3.0%
Military	Commissarys	0.6%
Amazon	Amazon	0.1%
CONVENIENCE	7/11, circle K, etc	16.8%
Total		100.0%

Source: IRI Database

# Tortilla Distribution Channels

# Folic Acid Fortified Masa

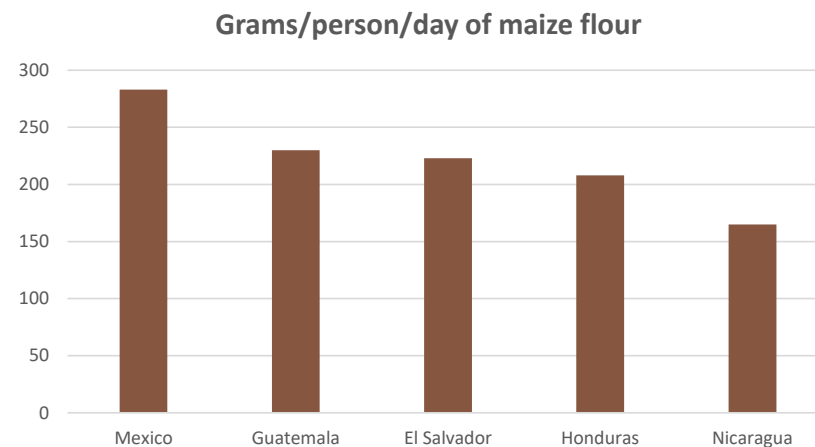


## Recommendations:

1. All dry corn masa flour contains 0.7 mg/lb of folic acid
2. Tortillas, tostadas, taco shells, tortilla chips, and taco chips/snacks made through wet process contain 0.4 mg/lb of folic acid in their final form

# Fortification Recommendations

- ❑ The current FDA recommendation states that voluntary fortification is not to exceed 0.7 mg/lb (1.54 ppm).<sup>6</sup>
- ❑ WHO recommends that wheat flour consumed at 75-149 g/c/d be fortified at 2.6 ppm, and 1.3 ppm when consumed at 150-300 g/c/d.<sup>11</sup> US wheat consumption is estimated at 160 g/c/d.<sup>12</sup>
- ❑ Hispanic consumption of maize flour in the US is unknown, but for comparison, maize flour consumption in Mexico and Central America is as follows:



<sup>6</sup> FDA Rule 2016

<sup>11</sup> WHO 2009

<sup>12</sup> FAO 2020



# Cost of Fortification

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COST PER HUNDREDWEIGHT:

**~4.4 CENTS**



COST PER 4 LB BAG OF CORN  
MASA FLOUR:

**~0.18 CENTS**



COST PER 30 COUNT BAG OF  
TORTILLAS:

**~0.032 CENTS**





# Public Health Commitment & Impact

## OPPORTUNITY

- Federal agencies are committed to addressing this disparity
- Limited impact of voluntary FA fortification of CMF
  - Retail CMF bags are a small proportion of consumed CM
  - Vertical production facilities do not use dry CMF

## POTENTIAL IMPACT

- An estimated 422,000 Hispanic women could achieve adequate folate status due to corn masa fortification<sup>12</sup>
- 127-235 NTDs can be prevented through fortification annually<sup>9</sup>

## HOW TO GET THERE

- Main retailers specify that tortillas and CM products are fortified (52% of masa products consumed would be fortified) AND
- All dry CMF millers fortify their products (72% of masa products consumed would be fortified)

<sup>12</sup>Hamner et al 2013





# The folic acid horse is out of the barn

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- ❖ UNIDOS asking FDA to place warning labels on unfortified CMF
- ❖ Proposed California legislation to mandate folic acid addition to CMF
- ❖ Similar interest in Tennessee, Alabama
- ❖ WIC recently included folic acid fortified tortillas on its list of allowable foods
- ❖ HHS Secretary Becerra advocating for producers to voluntarily fortify
  - ❖ March 29<sup>th</sup> meeting

# Discussion/questions:

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- ❖ Why is voluntary fortification of corn masa failing?
- ❖ Does this supply chain data seem accurate?
  - ❖ What is the customer base for imported corn masa flour?
- ❖ Do you have technical concerns around adding folic acid to corn masa products?

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Supply chain report:



FFI website:



# Sources:

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