



# Getting Soy Into Your Products

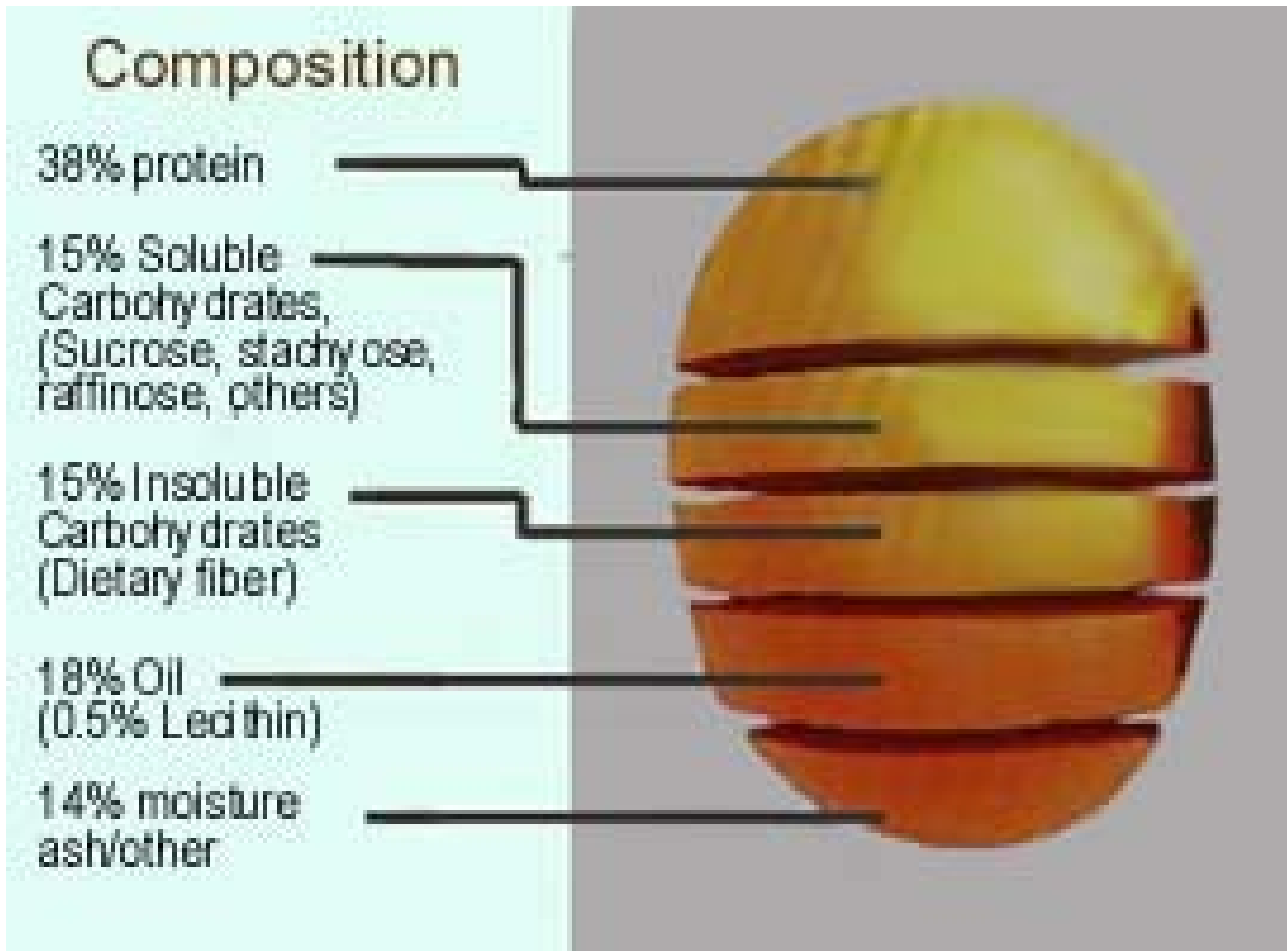
October 18, 2007

# Agenda

- Soybean Anatomy
- Considerations
- Extraction Process
- Beverage Applications
- Bar Applications
- Overview of Soy Products



# Soybean Anatomy





# Considerations

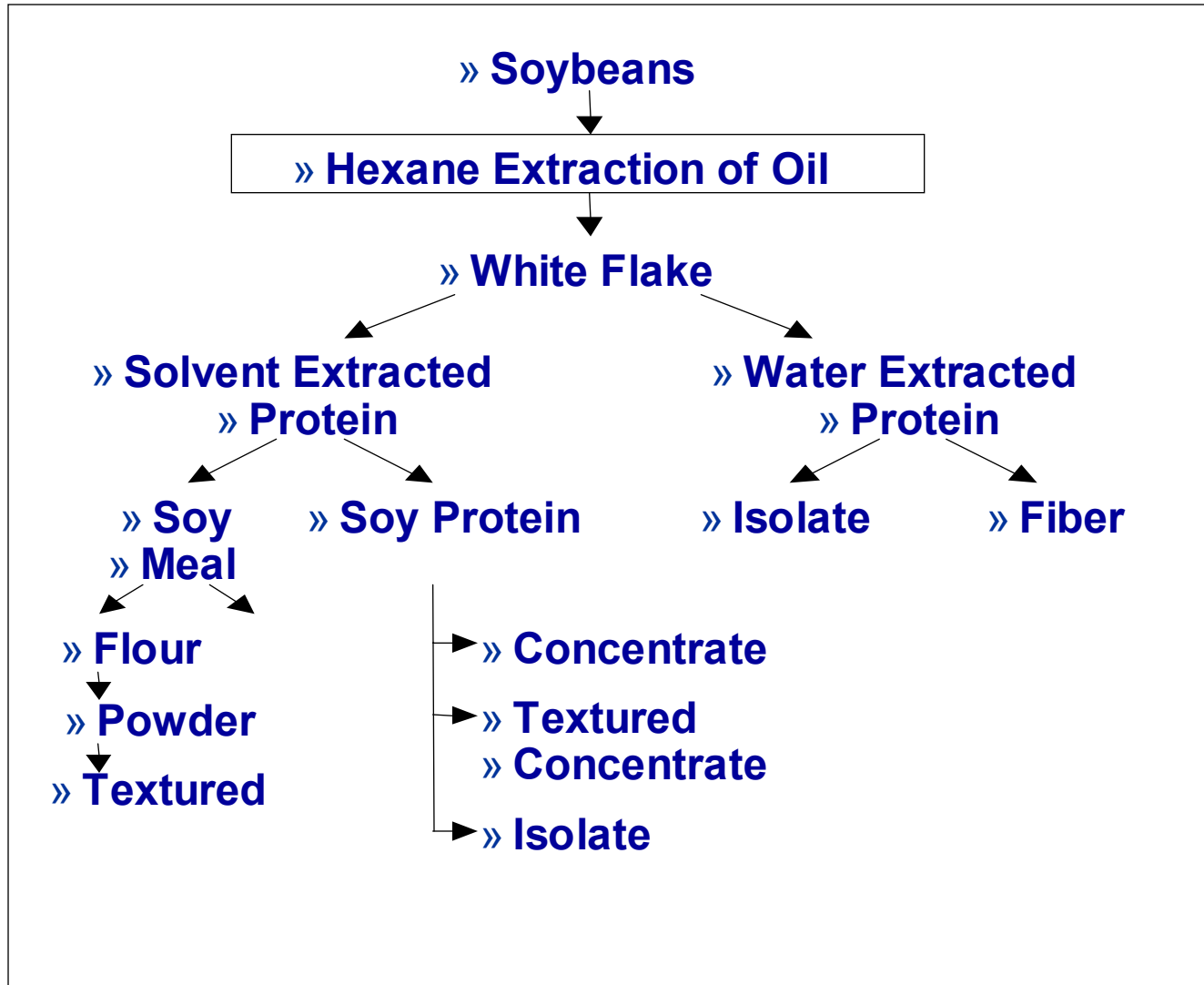
- **How can the finished product affect soy protein requirements?** *Depending on the application and requirements a specific soy protein would be used.*
- **How does a food company need to modify its manufacturing processes to accommodate soy protein?** *Mixing and hydration of the soy protein is very important, shear, homogenize, time and temperature, pH, order of addition.*



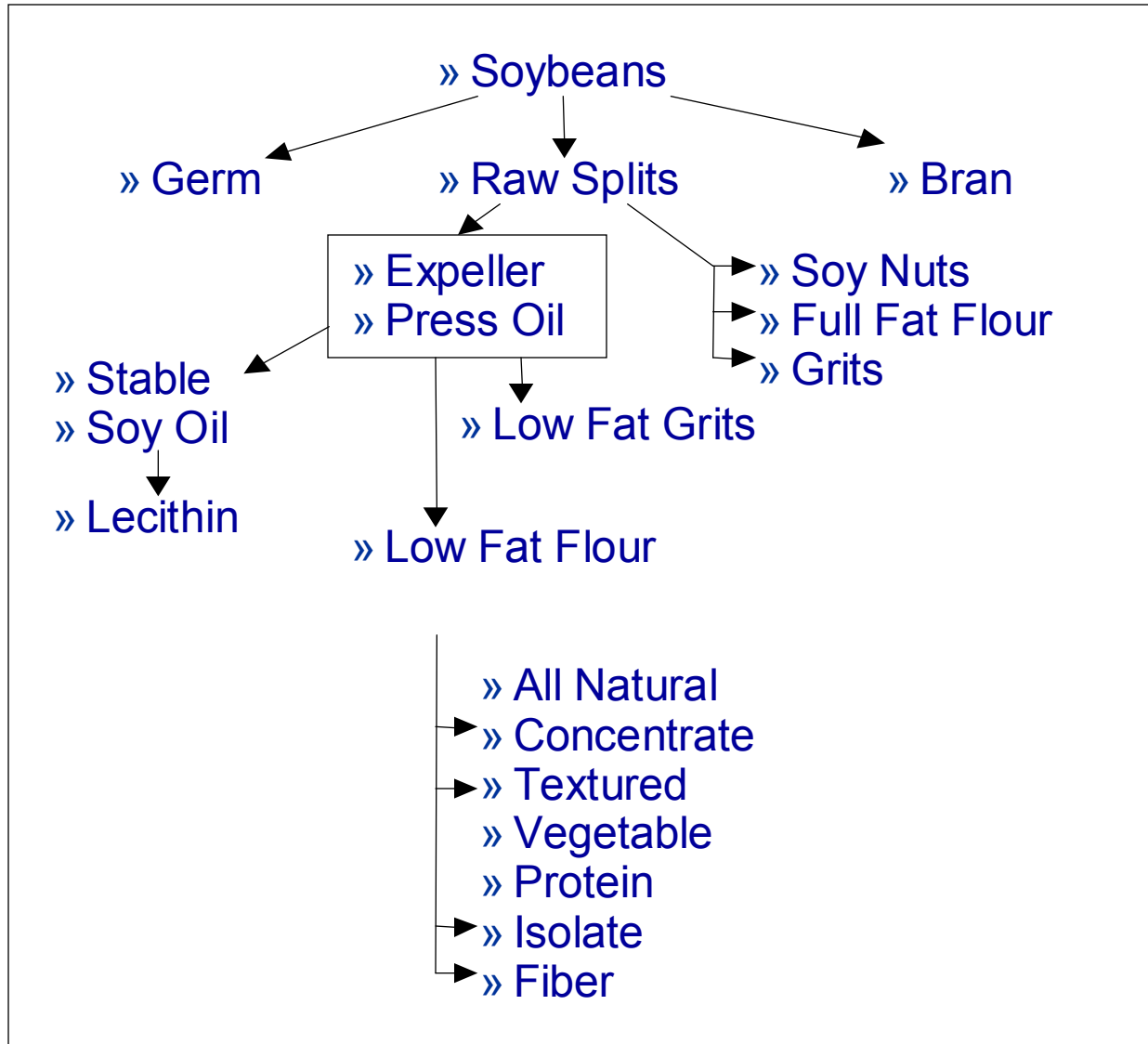
# Considerations

- **How does a food company need to modify its handling, storage, or packaging processes to accommodate soy protein?** *Store in a dry environment, soy allergen, Processed fresh / pasteurized, UHT / shelf stable.*
- **How has the use of soy protein changed in the years and how are new protein and system solutions conducive to soy protein use?** *Better overall flavor, more work being focused on soy to taste even more like milk protein.*

# Typical Solvent Extraction Process



# Organic Soy Process Overview









# Organic Process Review

- All Natural
- Water
- Heat
- Pressure
- Mechanical Separation
- Milling
- Grinding





# Application Technologies

<p><b>Bars</b> Textures, Doughs, Fillings, Coatings, Caramels</p>		<p><b>Bakery</b> Breads, Cookies, Cakes, Dry mixes</p>		<p><b>Meats</b> Tuna broth Ground Formed Meat extension</p>	
	<p><b>Beverages</b> Soy milk, meal replacers, neutral, juice based, sports, weight loss, medical</p>		<p><b>Snacks</b> Puffed pellets, sheeted chips, expansions, pretzels, crackers</p>		<p><b>Infant Formula</b> Lactose Free, Soy Protein Based, Prebiotics, comfort proteins; non- allergenic</p>

# Example Soy Milk Formulation



<b>Water</b>	<b>91.765%</b>
<b>Kerry Soy Milk Pwd.</b>	<b>5.5%</b>
<b>Sugar</b>	<b>2.4%</b>
<b>Tricalicum Phosphate</b>	<b>0.1%</b>
<b>Sea Salt</b>	<b>0.085%</b>
<b>Natural Flavors</b>	<b>0.07%</b>
<b>Carrageenan</b>	<b>0.04%</b>
<b>Vitamin Blend</b>	<b>0.04%</b>



# Batch Process

- **Fill tank with required ambient water per batch**
- **Sheer mix sugar with gums, high sheer**
- **add soymilk powder, high sheer**
- **add all micros (vit and mins, TCP, salt) high sheer**
- **add flavors, high sheer**
- **heat to 180 f and homo**
- **UHT Process**

**Nutrition Facts**  
**Plain Soymilk**  
Serving Size: 240 mL

Calories	80
Total Fat	3g
Saturated Fat	0g
Cholesterol	0g
Total Carbohydrate	8g
Dietary Fibre	0g
Sugar	7g
Protein	7g

# Soy Products for Extruded Bars

## Potential inclusions

- Soy protein/rice crisp
- Protein enhanced chips
- Soy/wheat crisp

## Soy Protein enriched core

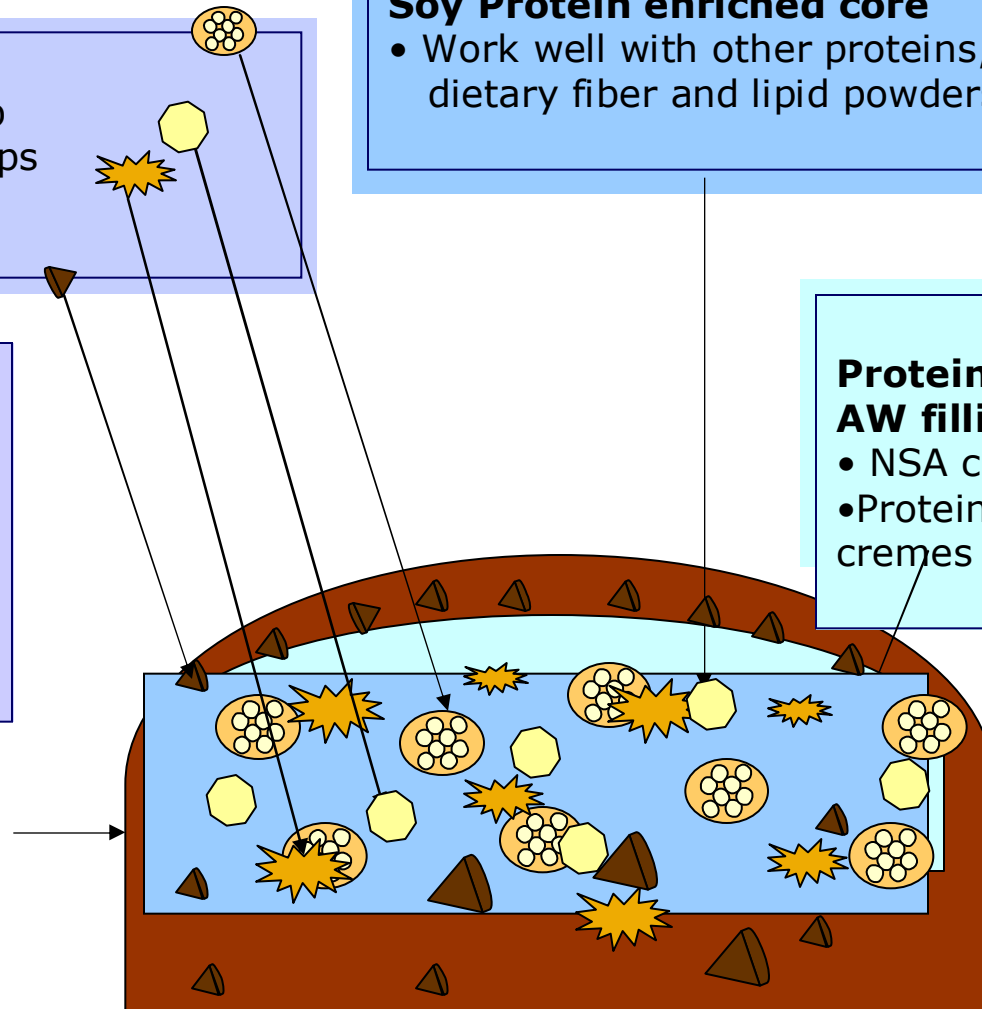
- Work well with other proteins, dietary fiber and lipid powders

## Protein enriched compound coatings

- Works well with sugar substitutes, flavors, colors and lipid powders

## Protein enriched low AW fillings

- NSA caramel
- Protein enhanced cremes



# Grapefruit Poppable



<b>Polydextrose 70% Liquid</b>	<b>25.00%</b>
<b>Soy Protein Isolate</b>	<b>19.50%</b>
<b>Polydextrose Pwd</b>	<b>14.01%</b>
<b>Milk Protein Isolate</b>	<b>13.00%</b>
<b>Frac PK</b>	<b>11.00%</b>
<b>Glycerine</b>	<b>4.98%</b>
<b>Mastertaste Cranbry pwd. C12476</b>	<b>4.74%</b>
<b>Beflora Fiber</b>	<b>3.79%</b>
<b>Water</b>	<b>2.00%</b>
<b>Lecithin</b>	<b>1.00%</b>
<b>Citric Acid fine gran</b>	<b>0.40%</b>
<b>Mastertaste 680499 Grpfruit</b>	<b>0.20%</b>
<b>Malic Acid pwd</b>	<b>0.20%</b>
<b>Flour salt</b>	<b>0.18%</b>



# Batch Process

- **step 1: mix all dries except acids**
- **step 2: dissolve acids in water**
- **step 3: mix polydextrose liquid with glycerine and dissolved acid water**
- **step 4: add step 3 to dries mix on low until dough starts to form**
- **step 5: add melted fat lecithin and flavors**

**Nutrition Facts**  
**Grapefruit Poppable**  
Serving Size: 10 grams

Calories	35
Total Fat	1.5g
Saturated Fat	1g
Cholesterol	0g
Total Carbohydrate	5g
Dietary Fibre	2g
Sugar	1g
Protein	2.2g





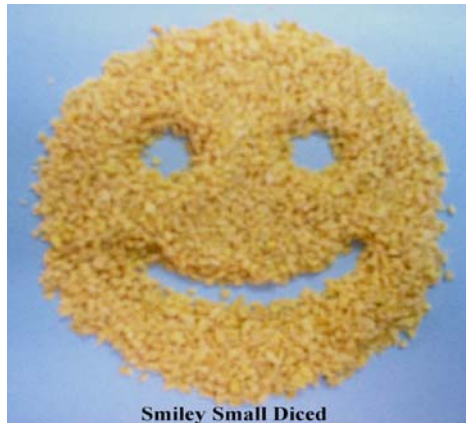




**Soynut Halves**



**Mixed Colored Diced**



**Smiley Small Diced**



**Standard Diced**



Thank You!

