



# Innovative Ingredients for Healthier Foods

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# Holistic Health

State of wellness on all levels of being – physical, emotional and mental

Need to develop food products that help people to have long term health and wellness.

Focus should be shifted from exclusive short-term benefits like weight loss to long term healthy wellbeing.



## Trends

The share of high-protein soup launches doubles over five years

Inulin, most common functional fiber in low/ reduced sugar products in last year

Plant-based proteins for sports nutrition records a rise in launch activity

62% of Indians aspire to live a healthier lifestyle over the next three years

**Cookies catch the high-protein wave**

High-protein claims have been on a five year upward trajectory

Launches of low/reduced/no-sugar foods, increasing by **19.20%** from 2015 to 2017

5% of total food and drink introduction featured a **high/added protein claim**

**15%** increase in fiber claims in new product launches last year.

**Meal replacements and sports drinks** are the most common formats introduced in Asia

**Fat Reduction**

**Sugar Reduction**

**Salt Reduction**

**Protein Enrichment**

**Fiber Enrichment**

# Sugar Reduction



## Sugar Reduction

Sugar contributes to taste as well as bulk and texture of the product.

Reducing sugar can be little complex in food systems.

It helps reducing calories, lowering glycemic response and fiber enrichment ( when fibers used in formulation)

This can be attained with combination of few ingredients, which help giving the bulk and texture along with taste, like:

- Polyols
- Fibers
- HIS

## Sugar Reduction

### Polyols

Sugar alcohols giving bulk and texture to product

Glycerol  
Erythritol  
Sorbitol  
Maltitol  
Isomalt  
Xylitol

### Fibers

Reduce sugars by imparting inherent sweetness

Gives bulk to product

Increase functionality of products with increase in fiber content

#### **Inulin**

**Soluble corn fiber**

**Polydextrose**

Cocoa pulp for chocolates  
FOS, GOS

### HIS

In combination with Polyols/  
Fiber gives the desired sweetness to product.

#### **Stevia**

Sucralose  
Acesulfame K  
Aspartame  
**Thaumatococcus**

## Sugar Reduction

- Thaumatococcus
- Low calorie protein sweetener (Katemfe fruit)
  - Flavor modifier (synergistic with savory flavor enhancer)
  - 1600 times sweeter than sucrose
  - Delayed perception of sweetness
  - Licorice type after taste
- Stevia
- 300 times sweeter than sugar
  - Bitter after taste
  - Glycoside content matter. Bitterness concentration of individual glycoside can be used to create ingredient with lower bitterness
  - Stevia extracted using bioconversion process to achieve sweetness very close to sugar



## Sugar Reduction

### Polydextrose

- Low calorie (1kcal /gm)
- Mouthfeel, bulk and functionality of sugar
- Process and acid stable
- High digestive tolerance

### Soluble corn fiber

- Helps give bulk, texture and mouthfeel
- Neutral and clean taste
- High process tolerance
- Functional benefits – less brittle bakery products, binding of cereal bars
- Adds sweetness to the product thereby improving taste

### Inulin

- Adds sweetness to the product
- Synergistic with HIS
- Aftertaste masking of HIS
- Bulking agent
- Improvement of taste and mouthfeel

## Sugar Reduction

### Natural flavor

- Improves flavor profile of stevia, synergistic
- Complies with FEMA
- Improves sweetness profile, helps in reducing sugar by 15-30%

### Monkfruit Extract

- Sweet molecules having synergistic effect with steviol glycosides
- Clean sweet taste
- 150-250 times sweeter than sugar
- FEMA GRAS approved

### Allulose

- Naturally occurring low calorie sugar (0.2kcal/g) extracted from corn kernels
- 70% sweetness of sucrose
- Similar profile, bulk and mouthfeel like sugar
- Synergistic with HIS
- FEMA GRAS approved, Codex not approved

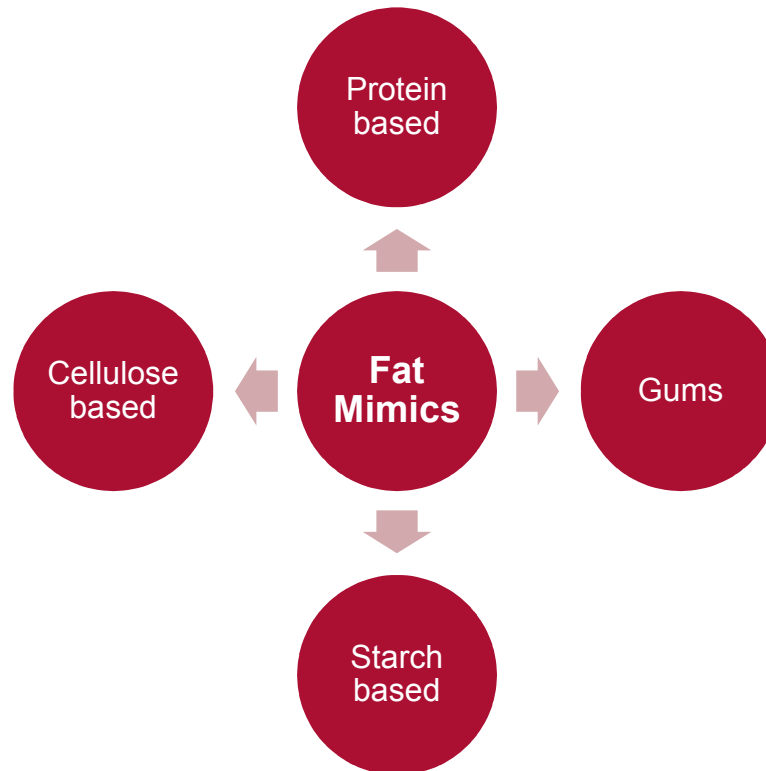
# Fat Reduction



## Fat Reduction

Reducing fat content in foods using fat mimetics.

They help replace mouthfeel of fat by increasing viscosity of liquid phase, but not substitute fat on gm to gm basis.



## Fat Reduction

### **Protein based:**

Functionally modified to imitate the structure of fat globules.

Contributes to creaminess, texture and mouthfeel like fat

### **Cellulose based:**

Gives creamy mouthfeel and little taste to food

Adds no calories to food

### **Starch based:**

Bland taste

Smooth creamy texture and mouthfeel of fat

Spread ability and appearance of fat

Oligo or Poly- saccharides chemically extracted from hydrolyzed corn, potato or tapioca starch

### **Gums:**

Gives texture and viscosity which helps mimic fat to certain extent.

Guar gum

Locust bean gum

Xanthan gum

# Protein Enrichment



## Protein enrichment

### Drivers for Protein use

- Wellness trend and high awareness on nutrition

### Protein Market

- Brands differentiating based on protein source

### Consumer research

- Consumers more accepting to proteins more recognizable and familiar

### Forecast Trend

- Use of high quality proteins in regular foods

### Food Trends

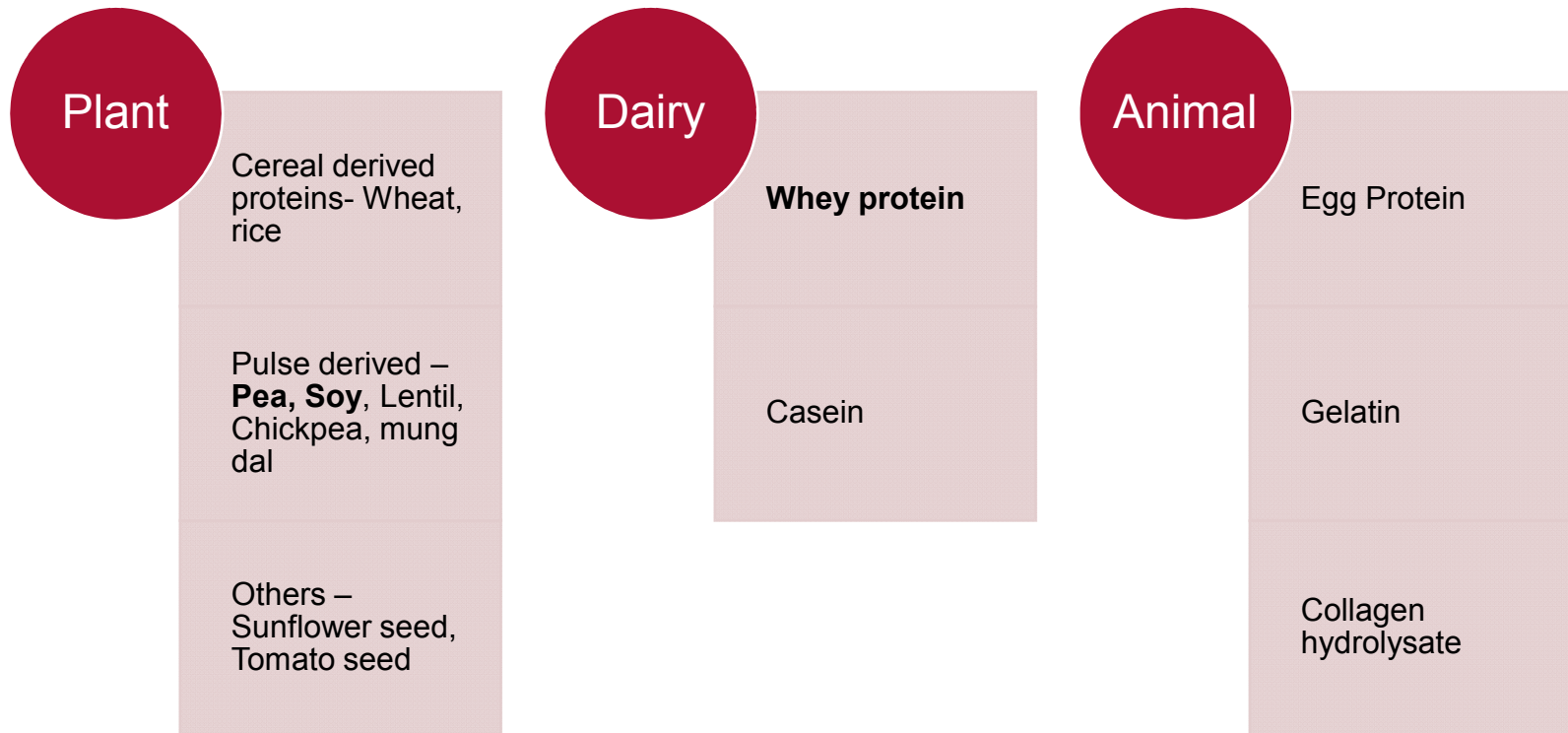
- Vegetarianism, natural, organic, vegan and flexitarianism

## FSSAI Approved claims for Protein

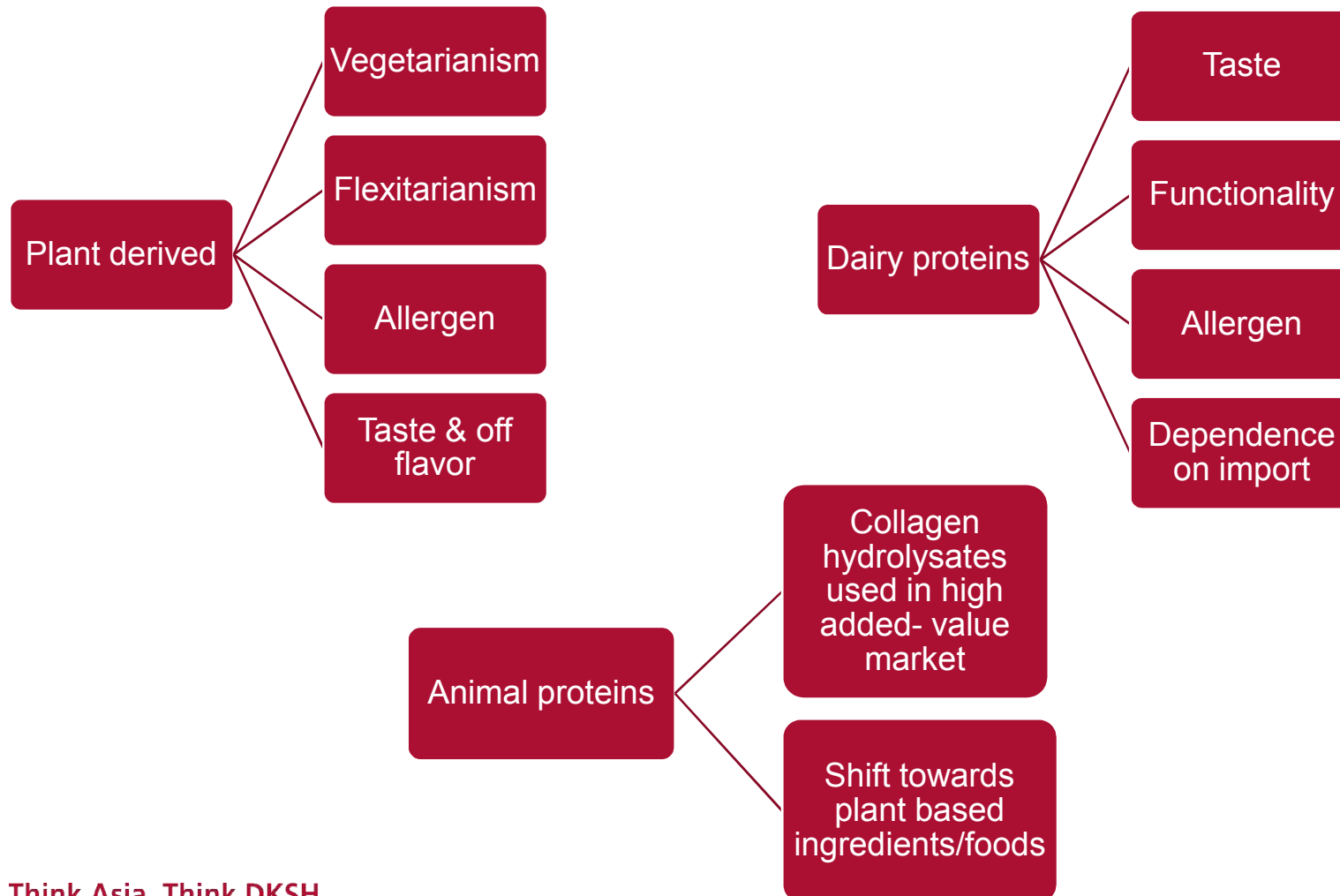
Nutrient component	Claim	Conditions
Protein	Source	10% of RDA per 100gm for solids
		5% of RDA per 100ml for liquids
		5% of RDA per 100 kcal
	Rich/ High	20% of RDA per 100gm for solids
		10% of RDA per 100ml for liquids
		10% of RDA per 100 kcal



# Protein Ingredients



## Drivers and Issues



## Protein Sources

### Pea Protein

- High-quality, easily digested protein source made from yellow peas.
- Rich in iron, arginine and branched-chain amino acids and offers benefits like improved muscle growth, satiety and heart health.
- Naturally vegan, gluten-free, dairy-free and hypoallergenic.

### Whey Protein

- Whey extract - provides substantial amounts of the essential amino acids.
- Increase muscle mass and strength.
- Functionally modified to suit desired applications
- Along with increasing protein in diet it helps in adding functionality to product, like emulsification

### Soy Protein

- Soy protein is a lean, cholesterol-free and lactose-free protein
- Made from defatted soybean flakes
- Complete protein with all essential amino acids

# Applications



Infant Nutrition



Functional foods



Dairy



High protein  
beverage



Animal feed



Meat analogs

## Salt Reduction



## Salt Reduction

Excess salt increases B.P and risk of cardiovascular disease.

Salt intake almost double the recommended amount (5g per day) globally.

Few Ingredients to help partial sodium reduction:

- Potassium chloride: reduces sodium content without compromising much on saltiness, however negative after taste.
- Natural flavour produced by fermentation with specifically selected food culture and natural substrate.  
Intensifies savoury taste. Used in application like processed meat, bakery products.

## Salt Reduction

- Yeast products, intensifies savoury note, helping in partial replacement, maintaining the taste.
- Hydrolysed Vegetable protein: savoury note
- Blend of cheese powder, with an amino acid profile helping to get a savory note and umami mouthfeel

## Fiber Enrichment





## Fiber Enrichment

Fiber is essential to health and wellbeing.

Promotes intestinal regularity, improves gut health

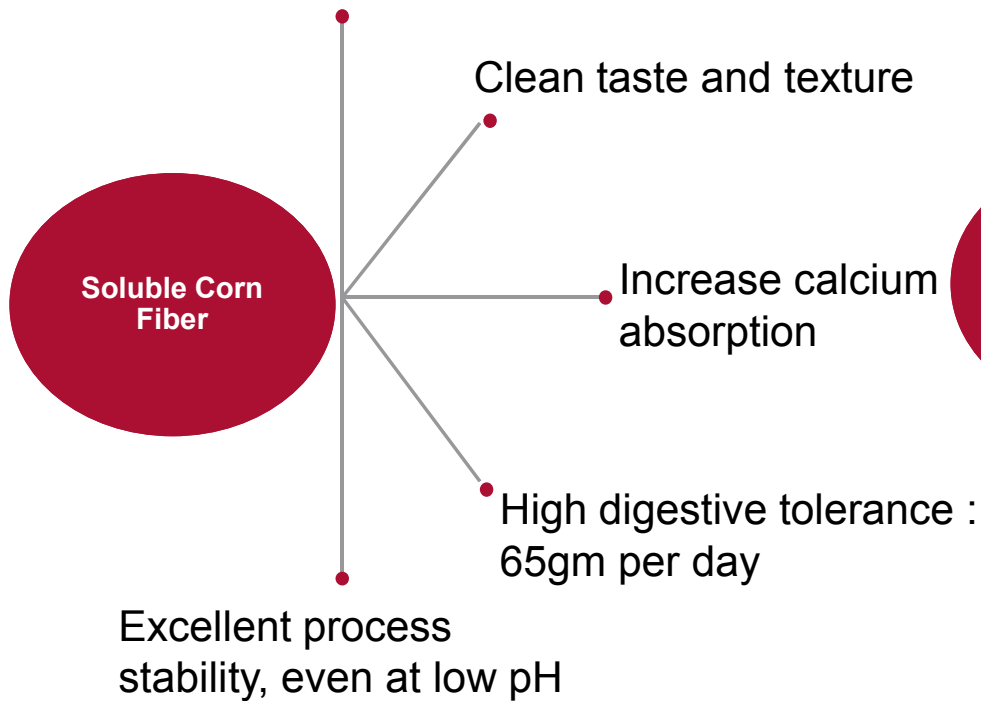
Helps improve taste and texture depending on application

Novel ingredients helping in fiber enrichment:

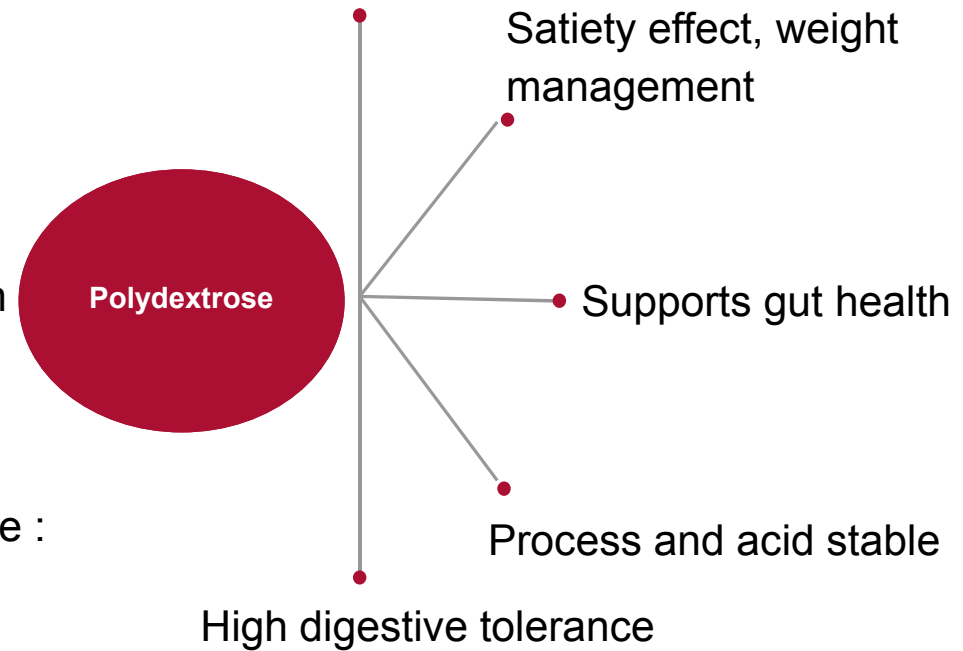
- Soluble corn fiber
- Inulin/ Non digestible Oligosaccharides– Chicory root fiber
- Polydextrose
- Beta Glucan
- Psyllium
- Resistant starches

# Fibers

Texture improvement : adds bulk and viscosity



Helps texture and mouthfeel of products



## Fibers

### Inulin



- Fiber enrichment
- Prebiotic effect
- Anti-constipation
- Immunity-gut health

- Low caloric value
- Enhanced satiety

- Mineral absorption

- Mouthfeel
- Gelling
- Bulking agent

## Fibers

### **Beta Glucan**

Soluble dietary fiber

Improve cholesterol levels, boosts heart health

Ease of digestion, gut health

Regulates blood sugar levels (reduce risk of type 2 diabetes)

### **Resistant starches**

Non digestible, high satiety

Helps growth of healthy bacteria in lower gut

### **Psyllium**

70% soluble fiber

Satiety

Aids digestion

### **Non-Digestible Oligosaccharide**

Low molecular weight carbohydrate

Dietary fiber & Prebiotic

Improves gut microecology bacterial populations, biochemical profiles and physiological effects

## Fortification with omega 3, vitamins & minerals

Fortification adds additional micronutrients not present (or present in small amounts) prior to processing.

Omega 3 - PUFA:

Essential for normal human growth.

ALA(essential fatty acid), EPA and DHA

Vitamin & Mineral:

Micronutrients that are required in trace quantities, deficiency can pose serious threat.

Blend of vitamin and mineral, can be custom made specific to application and target audience ensuring stability, taste, colour and texture of final product

# DKSH Offerings



## DKSH Clients



**TATE & LYLE**



 **lactosan**



Thank you for your attention



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