Cochran 2022
Explore Experience Inspire

Meat Avatar

The World without Livestock

About Us

“Meat Avatar” using the innovative food technology to develop our Plant-Based Meat products to be as tasty and nutritious as real meat at affordable prices.

We hope that people will enjoy their dishes with our Plant-Based Meat products, at the same time, feeling nice about their health and environmental sustainability.

KEY INGREDIENTS

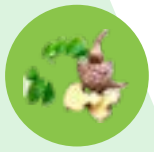
Bean

Pea

Rice

Beetroot

Carrot


Konjac

Shitake

Pomegranate

Coconut Oil

Yeast

Malt

Pumpkin

100%
PLANT BASED
INGREDIENTS

Meat Avatar

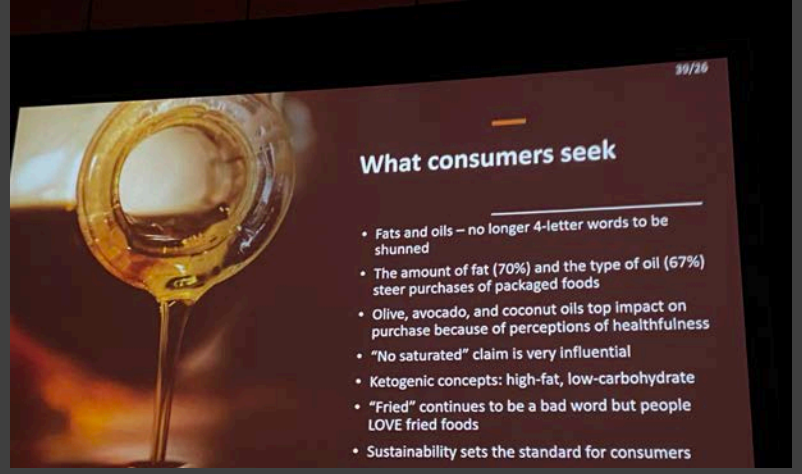
PRODUCTS

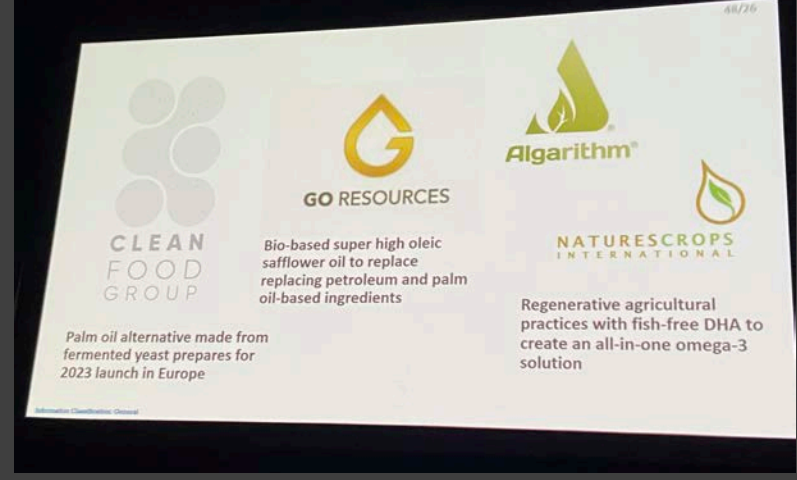
@MeatAvatar
Meat Avatar
MINCED PORK AVATAR
หมูสับจำแลง
READY TO COOK
20G OF PLANT PROTEIN PER SERVING
GLUTEN FREE
NET WT. 240g
PERISHABLE: KEEP REFRIGERATED
9 961193 410131

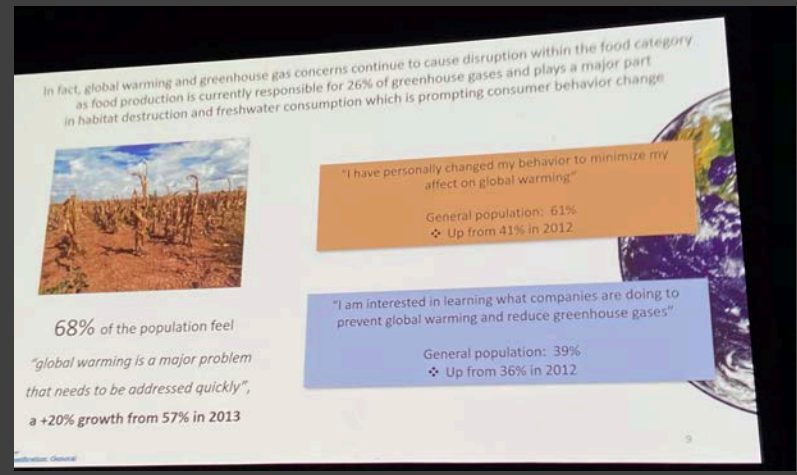
VEGAN
GOOD
HEALTH
- NEW FOOD GOOD HEALTH -
Meat Avatar
CRISPY PORK AVATAR
หมูกรอบจำแลง
READY TO COOK
PLANT-BASED MEAT
17g
OF PLANT PROTEIN PER SERVING
PERISHABLE: KEEP REFRIGERATED
NET WT. 200g

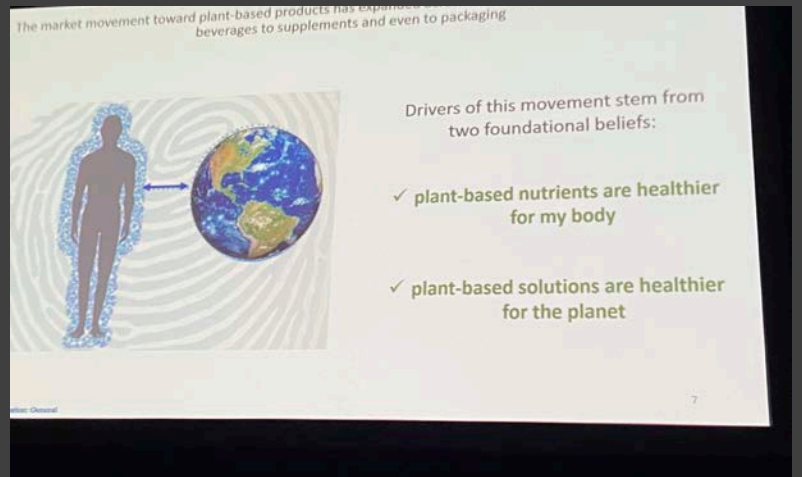
Patty & Meat Ball

Supply Side West



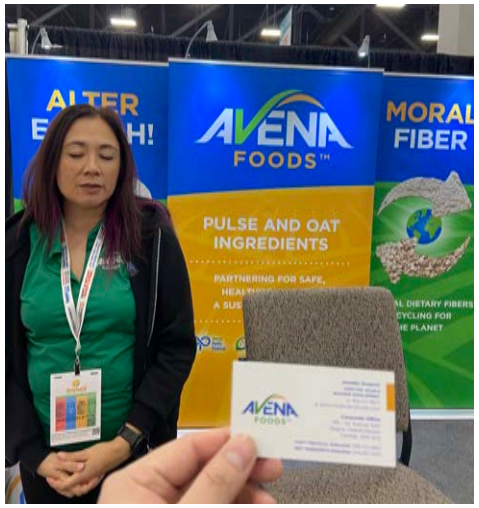






Supply Side West

- Gummy
- Capsule
- Supplementary
- Immune



Food Ingredients 21th Century

Food Processing Industry

U.S Business model: low-cost food
- 4% gross
- 2% net profit

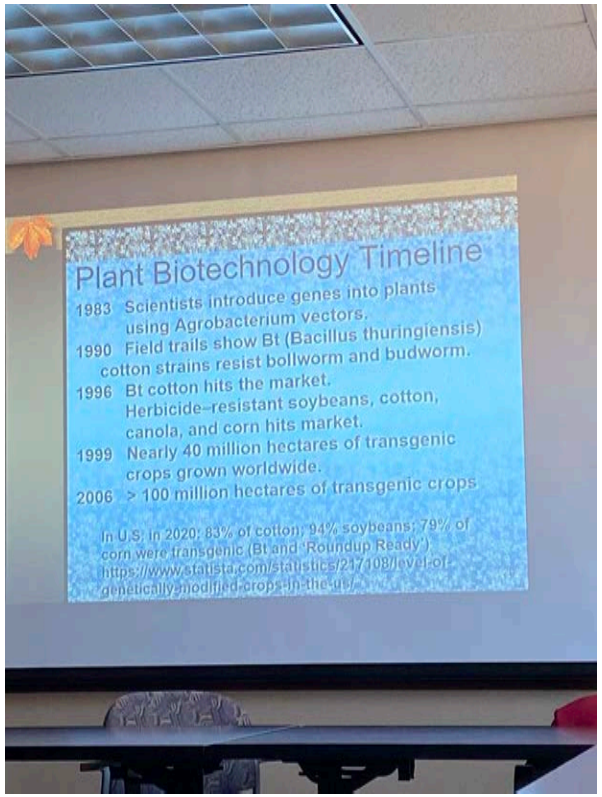
Large Volume / low margin
- Process adds a greater Value

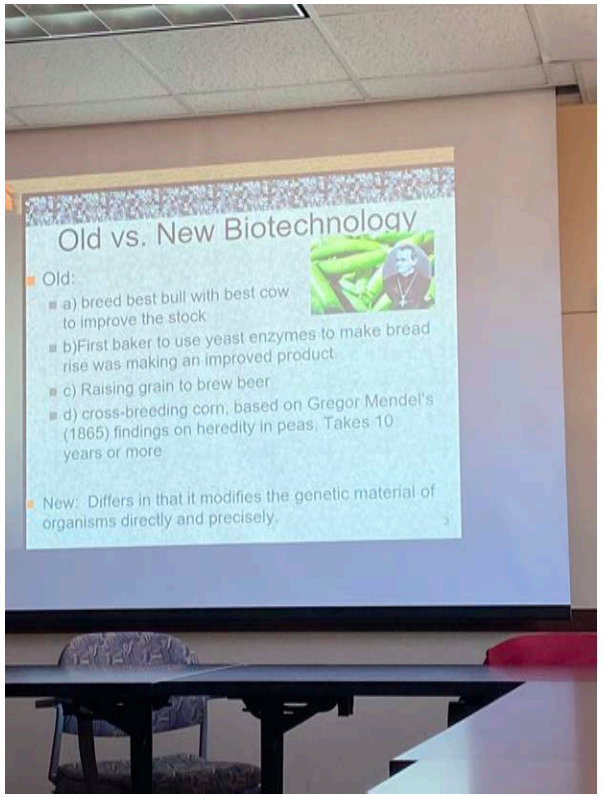
Major differences between fresh and processed
- control of handling and **retail losses => what can we do with this business => make it sustainable business model**

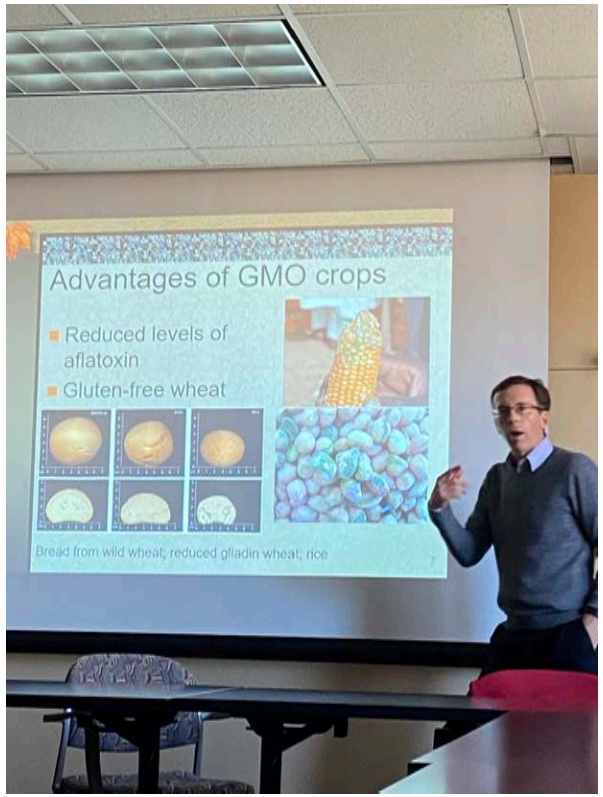
Recent yearly trends for new food products entries
(7 years data to 2018)

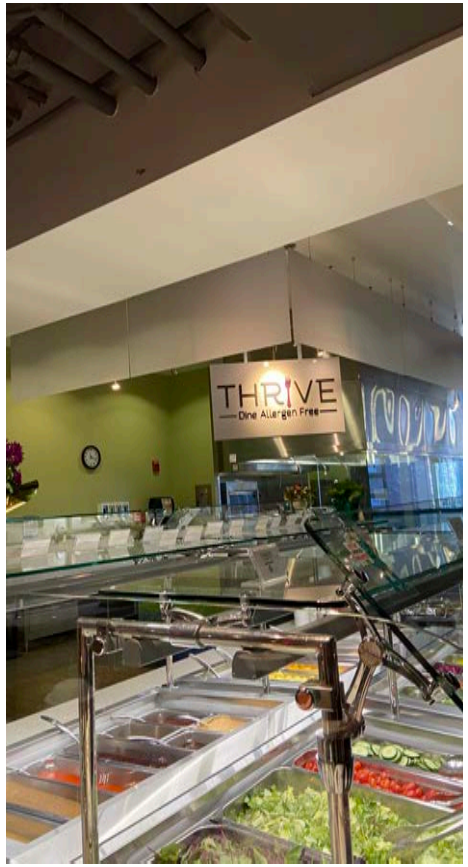
Blue Zones => Geographic for longevity living people in that zone

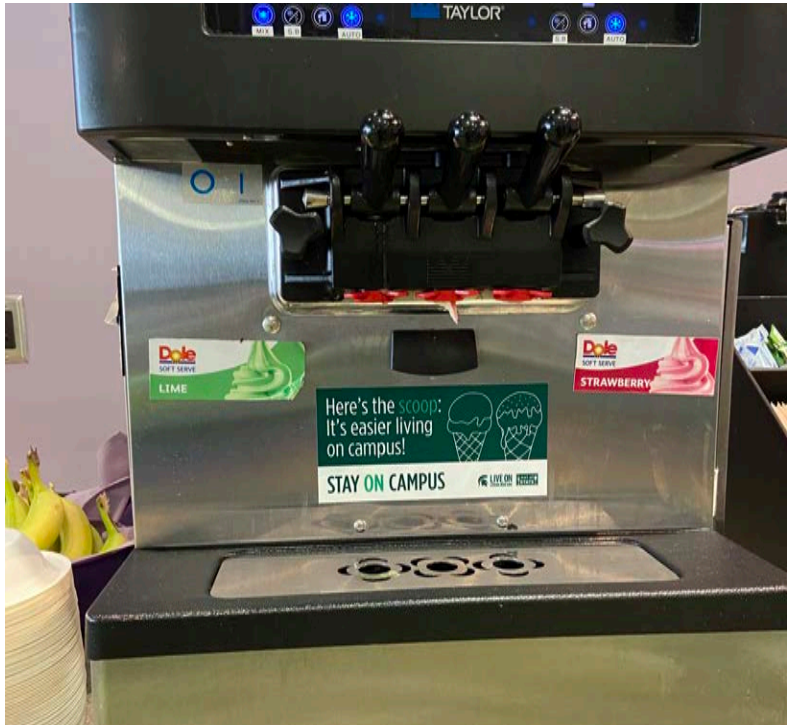
BIO TECHNOLOGY &GMO

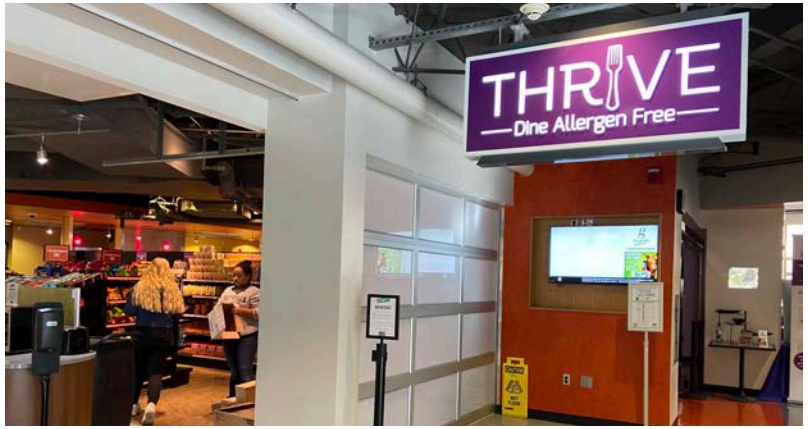












Non-Allergen Canteen

Diary Plant

Value Added Processing of Diary Products

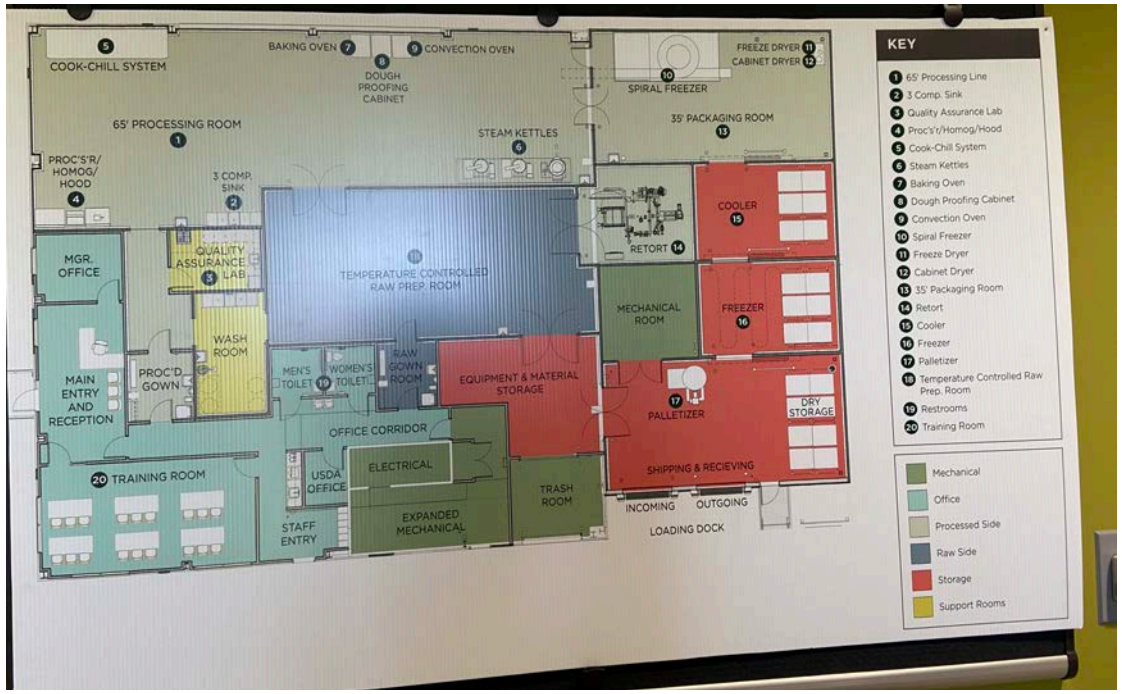
Vitamin in the dairy product

Vit D
Vit B12

Sentenarian Leaf (Seaweed)

Brewer yeast

Food Processing Innovation Center

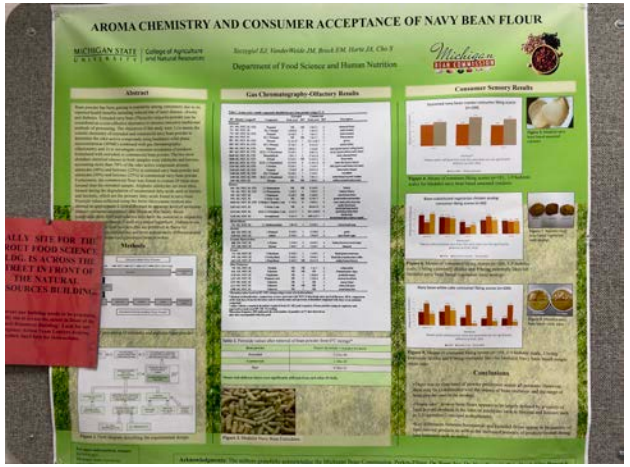


Sensory

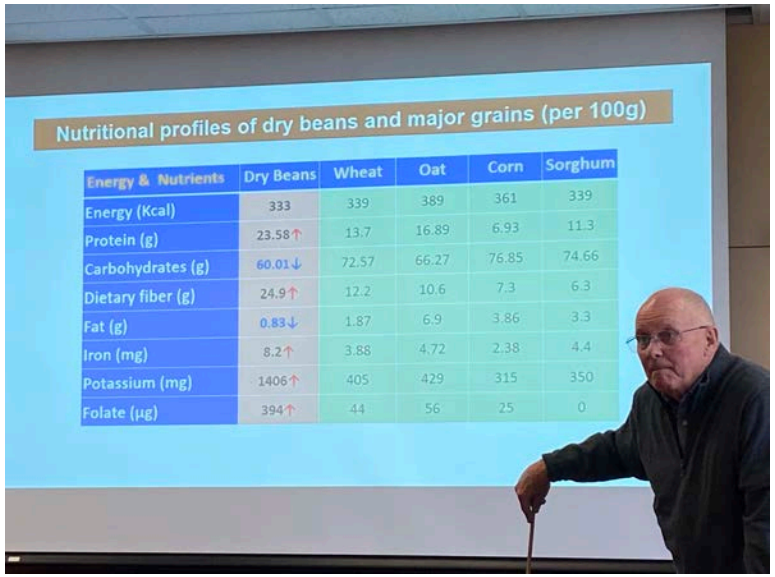
- Clear scent
- Carbonate water
- Warm water

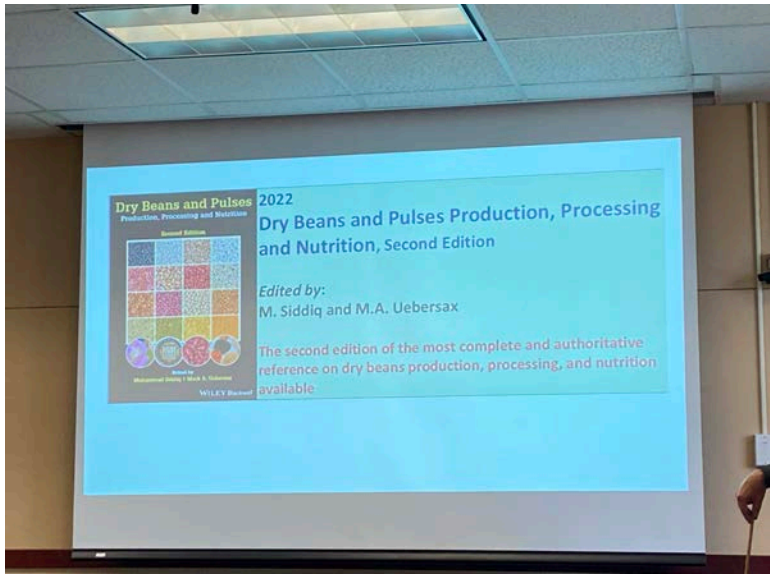
- Cracker
- Carrot
- Milk

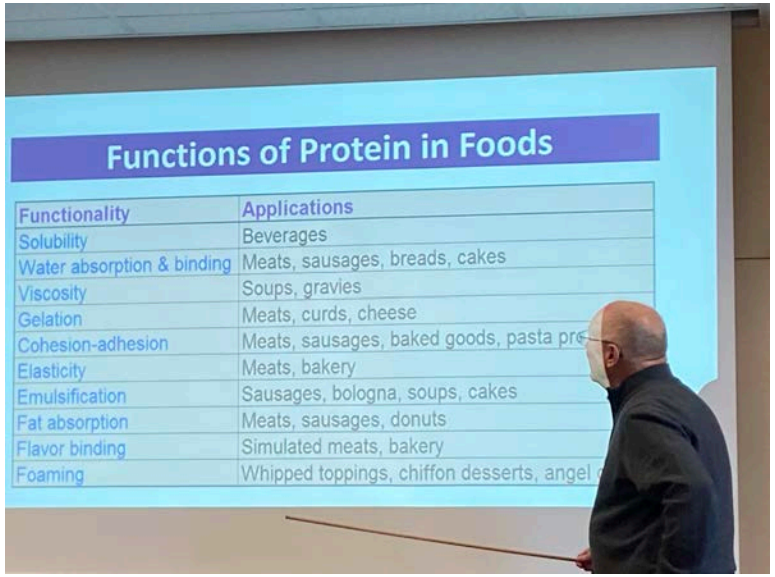
Goodscents.com
Flavornet.com

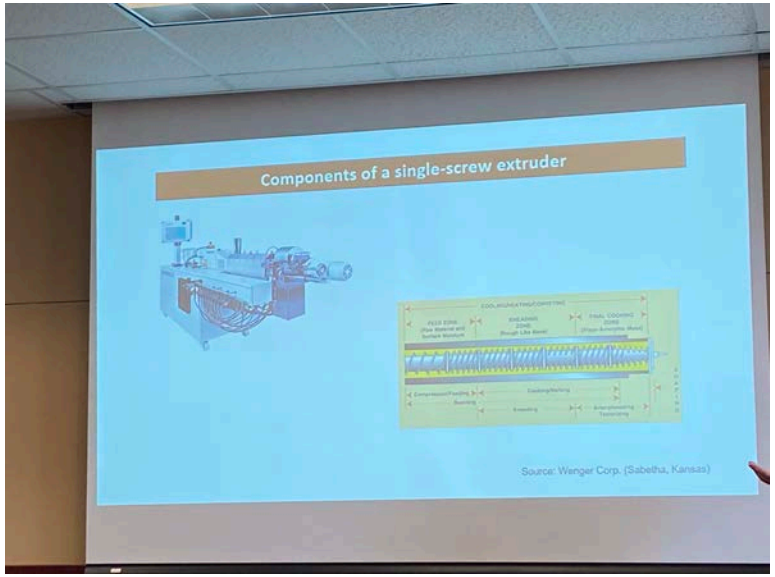


Global Bean and Pulse Industry









Global bean & Pulse Industry

Symbiotic Nitrogen Fixation (SNF)
rhizobia bacteria => ดึง N2 จาก อากาศ

"**Kidney Bean" *****

Production
Storage and Handling => water will effect
Physiological Properties

Nutritional Enhancement

Process Modification
Thermal inactivation:

Extraction / Concentration
•Air Classification
•Aqueous
•Membrane

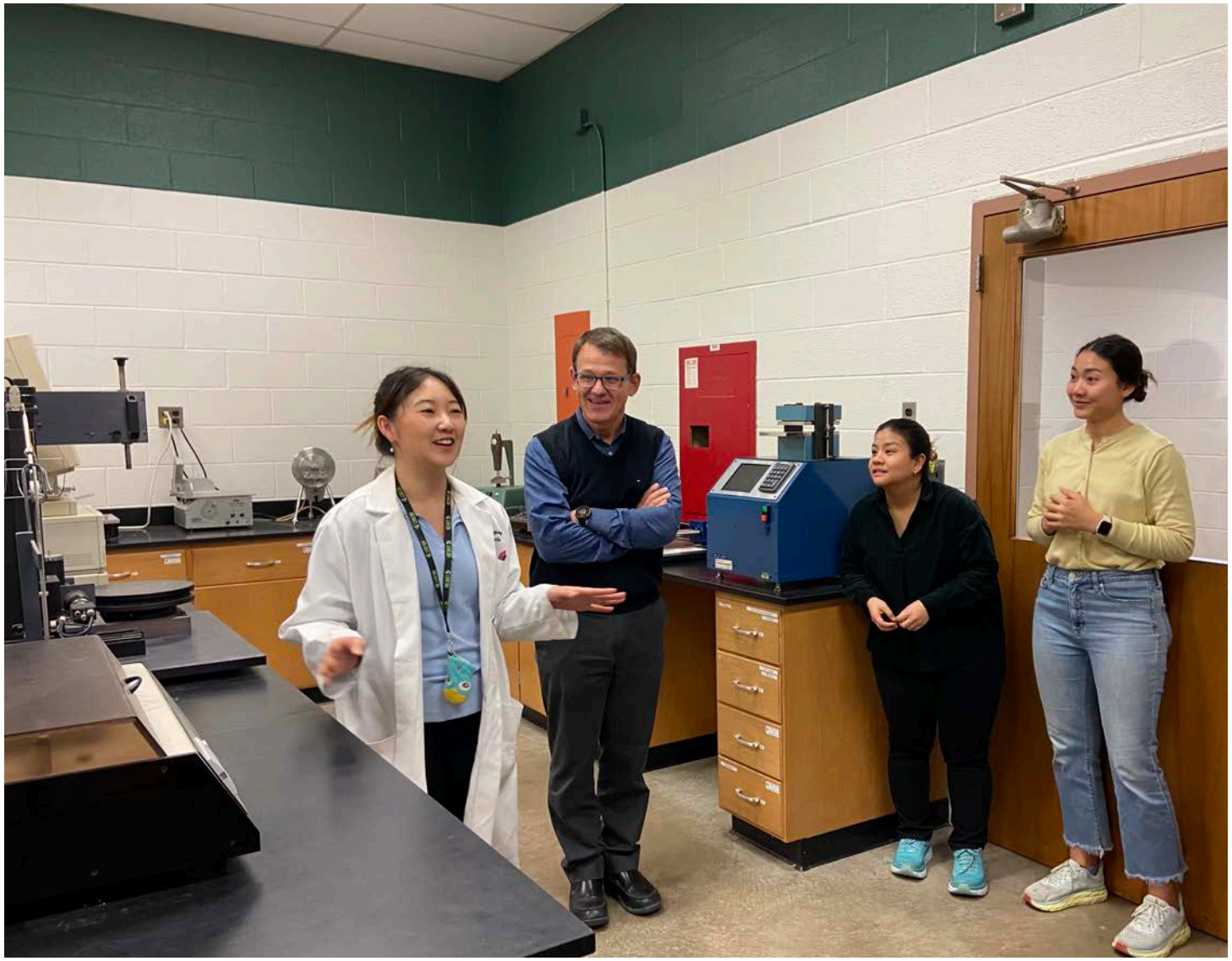
Value-added Processing
Packing
Canning

Precooked Products (60%)
•Pin Milled
•Air Classified
•Fractions (Protein, Starch, Fiber)

Milled flours Concentrates (90%)
•Wet Extraction
•Ultra filtration Isoelectric ppt
•Protein Isolates

Protein Hydrolysis

Packaging



Design the right packaging for the right product To preserve environment (trade off between advance)

Innovative Food Ingredient Trends for Product Development

Current Trend

- Cut Sodium
- Low Sugar
- Gluten Free
- High Fiber Food

Innovative Food Ingredient Trends for Product Development

Salt

- metallic notes
- effect to texture: processed meat (extract meat protein from meat muscle), bread

How to lower salts content

- High purification & crystalline structure of NaCl (*lower density salt flack with greater surface area 33% reduction)
- Salt microspheres (20-25% Na reduction)
- Sea salt-reduce Na by Replacing it with other minerals K, Mg, Ca

Sodium Reduction Principles

- Wide range of salt replacers but the cost!!
- Taste modifiers
- ***Trick the sensory

Innovative Food Ingredient Trends for Product Development

Popular Option

- NaCl + KCl => 30-50% but bitter note / metallic note
- enchanting flavor
  - garlic, onion
  - low concentration of vinegar / citric
  - Dairy (whey or milk) permeates => calcium increase salty taste
  - Smoky note also help
- Umami
  - “Savory” (not salty) taste of broken down proteins (small peptides & amino acids) and nucleotides (Hydrolyze Proteins)
  - Naturally
    - cheese, meat , fish => protein
    - seaweed, tomatoes, mushrooms => high in glutamate
    - yeast extracts: => Cell => DNA => nucleotides
- “Toolbox” approach
  - KCl combine with other ingredients e.g. yeast extract about 20-30%

What harm people ? NaCl or Salty taste

Innovative Food Ingredient Trends for Product Development

Sugars & Sweeteners

- Develop color
- Texture or mouth feel
- Moisture retention
- Control Aw: shelf life, safety

Alternative sweetener
Sugar = Sucrose

Sugar replacement concern about Sweetness Equivalence (compare to sugar = 1 index) / Calories / Solubility / Glycemic Index

Monosaccharides e.g Glucose, Gructose
Disaccharides e.g. Sucrose (sugar cane), Maltose,
Oligosaccharides e.g. Maltodextrins, Inulin
*** Polyols (Alcohol of sugar) e.g Xylitol, Sorbitol => sweet as sugar, low cal, but cool sense

Innovative Food Ingredient Trends for Product Development

HIS (High intensity sweetener)

Issues with

- Slow onset or longer linger
- sugar is very quick gone sweet taste

Sweet Proteins (sweeter than sugar, heat & ph stable, no bitter aftertaste, GI = 0, water soluble)
Brazzein
Thaumatin
Monellin

Sweet Modifiers

Innovative Food Ingredient Trends for Product Development

Gluten & Gluten-free

2 Proteins (Gliadins, Glutenins)

Gluten free product

- Processing: machinability
- Taste, Texture & Appearance: Dry
- Shelf Life: shorter
- Nutritional profile:

Gluten Free Solutions

- Eggs => Elasticity, binding agent, thickening, Lecithin as emulsification
- Starch / Rice flour => Viscosity contributor but have to use with Pre-gelatinized starches,
- Hydrocolloids: Gums (Guar, locust bean, xathan), TIC Gum, Chia and flax have natural gums
- Fibers
- Fats and Emulsifiers
- Enzymes
- Grains: flax, quinoa, chai, buckwheat

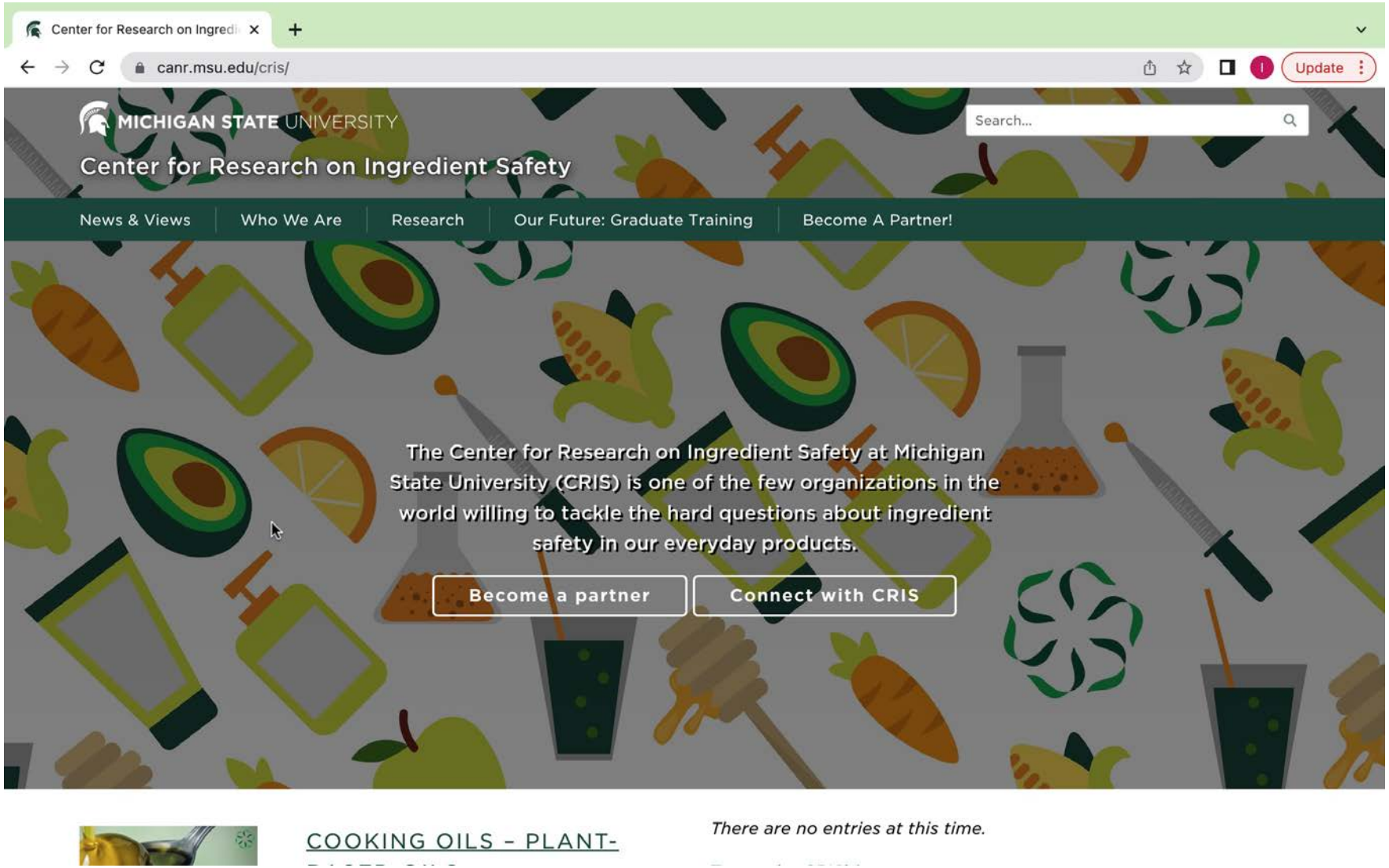
Innovative Food Ingredient Trends for Product Development

Fiber & Fiber addition

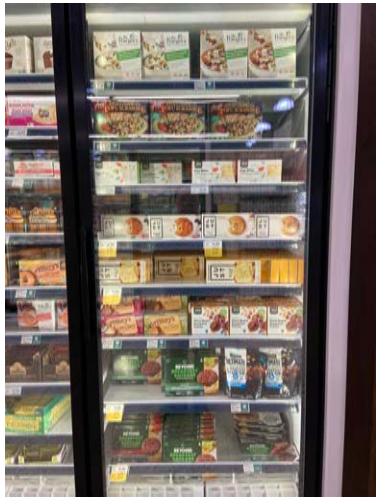
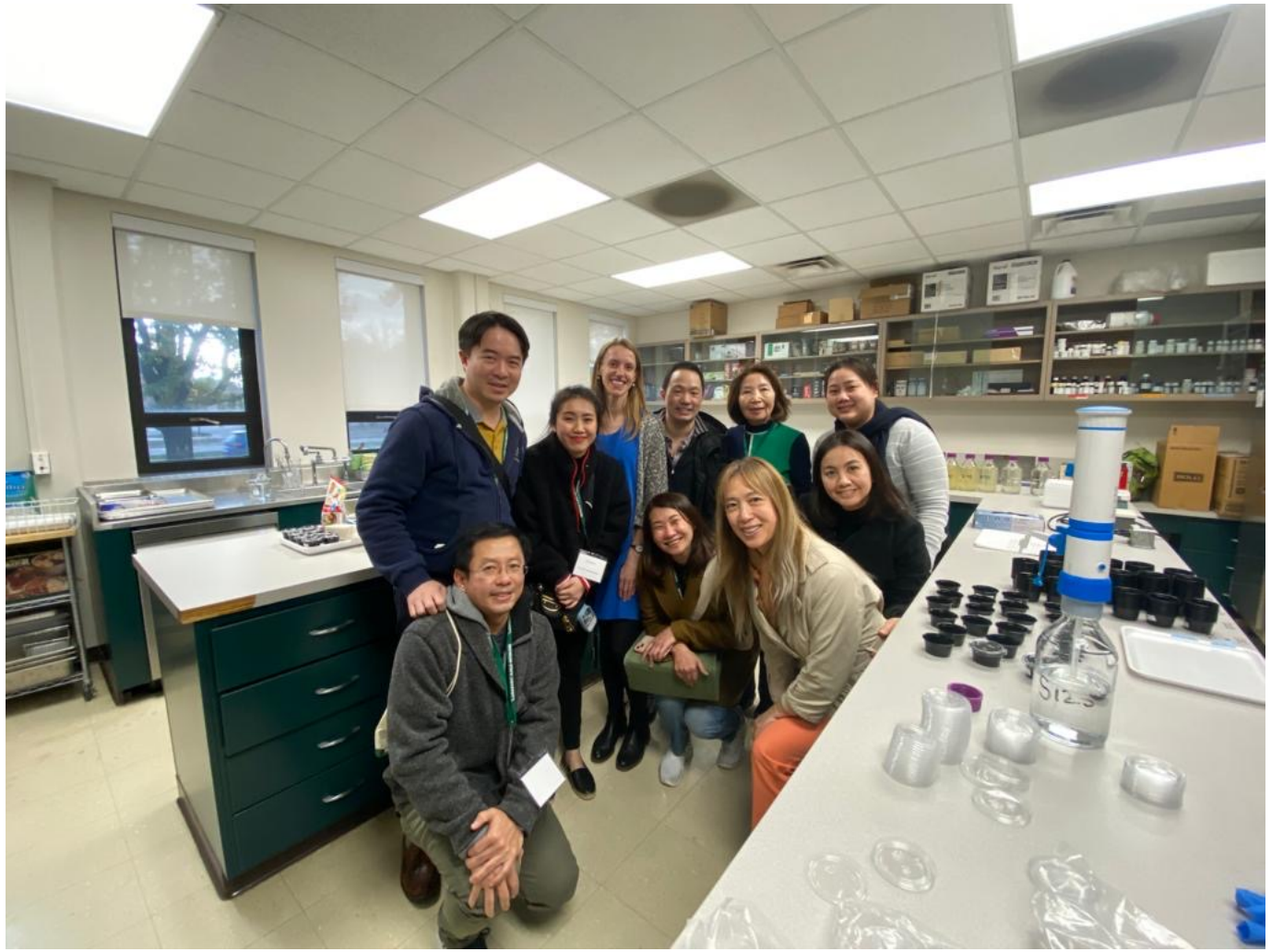
Macro sources: Cellulose, hemicellulose, mucilages,
Function
- Fat reduction
- Water holding Capacity
- Rheological properties (viscosity)
- Aiding in extrusion
- Dimensional stabilizer
- Texturisingagaent
- Gelling agent
- Prebiotics (Inulin, Oligofructose)

Food Safety

CRIS.msu.edu



Market Visit



Friendship / Networking / Connections