



UPDATES NUTRITION

August 7, 2023. 2:00-3:30 pm by Siew Sun Wong, PhD, MS, LTCL

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Oregon State University. College of Health. Extension Family and Community Health & School of Public Health and Nutrition

<https://beav.es/TmN>

How we will spend our time together...

2:05 pm, Learn Together ⇒ 2:45-2:50 pm, Take a Small Break ⇒ 3:20 pm, Future Topics & Training Mode ⇒ 3:30 pm, Adjourn

**Mini lecture + response
to submitted questions**



**Insights from you using
Google Jamboard**



<https://beav.es/Tmp>



Food Security
(getting enough calories)

Nutrition Security
(getting the right calories)

WHAT IS NUTRITION SECURITY?

Consistent access to nutritious foods that promote optimal health and well-being for all Americans, throughout all stages of life.



Nutrition
Security



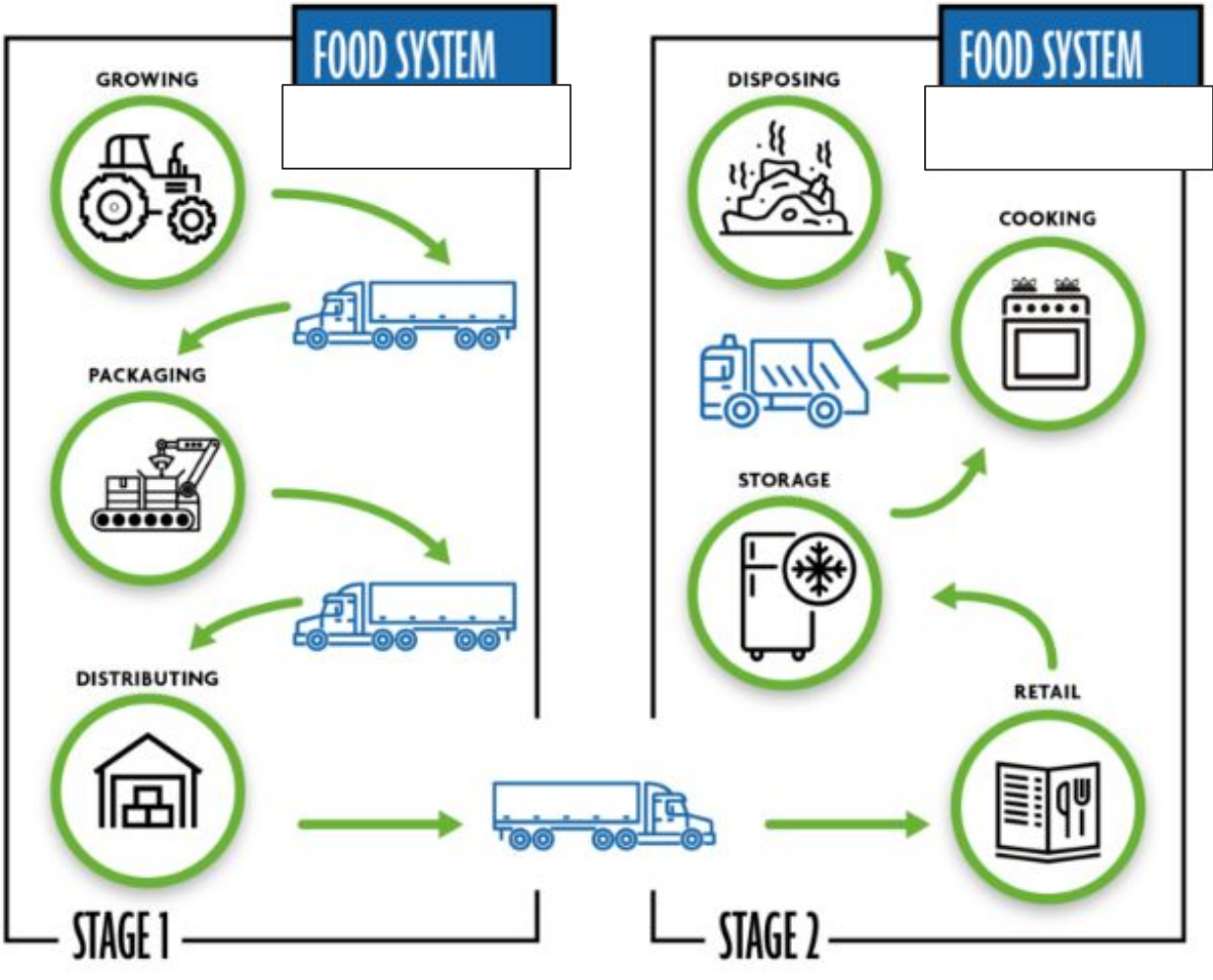
Food
Security



Diet Quality



Equity



WHAT IS NUTRITION SECURITY?

Consistent access to nutritious foods that promote optimal health and well-being for all Americans, throughout all stages of life.

=
 +
 +

Nutrition Security = Food Security + Diet Quality + Equity

Image source from Bon Appetit Management Company:
<https://www.bamco.com/blog/the-link-between-the-food-system-and-climate-change/>

Say “**Nourishing Nations**” instead of “Feeding the Populations”.

Aquatic Foods
= Superfoods

2021 World
Food Prize
Winner

Head Chef for the
House of Senates,
5 Presidents, etc.

Dr. Shakuntala Thilsted & Chef Daniel Thomas at 2023 SNEB Conference

Aquatic Foods = Superfoods

Recognize the diversity of aquatic foods as superfoods for:

1. Food and nutrition benefits
 - a. Multiple highly bioavailable micronutrients
 - b. Essential fatty acids
2. Socio-economic benefits
 - a. Livelihoods and income
 - b. Women and youth engagement
 - c. Capacity building
3. Environmental benefits
 - a. Ecosystems rehabilitation and enhancement
 - b. Low environmental cost





Finfish

Fish as normally understood (e.g. tilapia), which are called finfish to distinguish them from shellfish, which technically are not classed as fish.



Shellfish

Any aquatic animal whose external covering consists of a shell, either crustacea (e.g. shrimps) or molluscs (e.g. oysters).



Aquatic Plants

Includes aquatic plants (e.g. watercress) as well as algae (e.g. seaweed) which are typically not classified as plants.



Aquatic Feeds

Any of the above categories and other single-celled organisms (e.g. yeasts) used as animal feed.



Other Aquatic Foods

Certain niche categories, notably echinoderms (e.g. sea cucumbers) or amphibians (e.g. frogs).



Synthetic Substitutes

Whole or component substitutes for any of the above, produced in environments outside their normal biological context (e.g. surimi or plant- or cell-based alternative aquatic food protein).

Micronutrients and EFA in Diverse Aquatic Foods

Studies show that aquatic foods, when consumed as part of diverse diets, contribute to the daily recommended nutrient intake of adults and children.

	DHA+EPA	Vitamin A	Vitamin B12	Calcium	Iodine	Iron	Zinc
Small pelagics	100+%						
Clams, Mussels, Oysters		50%					
Large pelagics							
Salmonids							
Cephalopods							
Carps		0%					
Crab, Lobster, Crayfish, Shrimp							
Tilapia & other cichlids							
Cods							



Milk vs. Small Fish in Calcium Absorption



Chef
Daniel:
Self-Love

Chandra
Banks:
Seeds

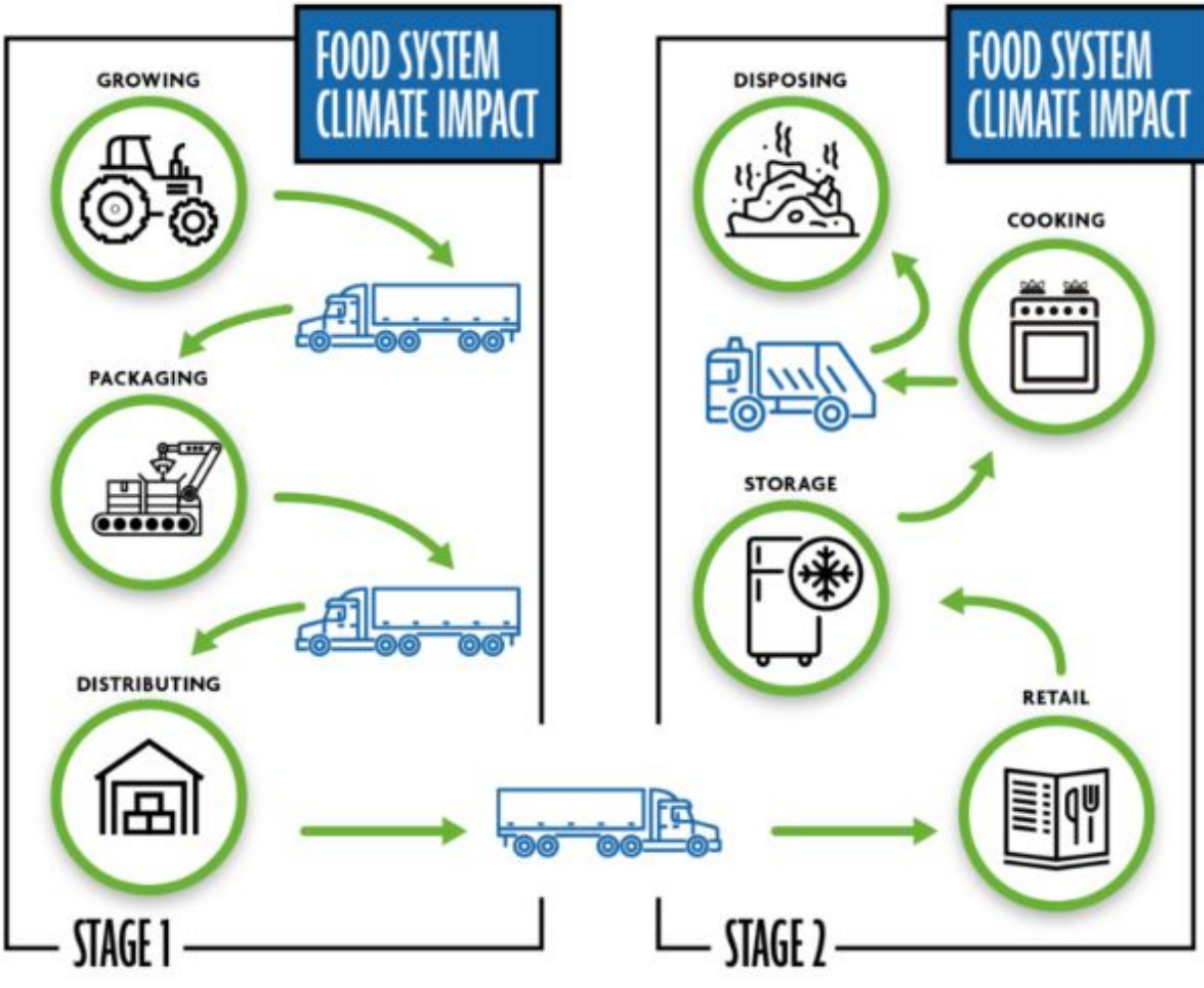
Jenn
Mampara:
Joy

Virginie Zoumenou:
Unity with harmony
and ownership

Tambra
Raye:
Okra
(Hope)

*“What is your
secret ingredient
for empowering
food citizens?”*





- + Cultural Relevance
- + Sustainability (Climate-Resilience)

Climate-Resilient Food Citizens Consumer Behavior

Food Waste Reduction

- Food labels

USDA Climate Solutions:

<https://www.usda.gov/climate-solutions>

Climate-Resilient Plants to Consider Promoting



Image: <https://www.europeanfiles.eu/>

Water Footprints: Less than 10 gallons per 0.5 cup serving



Mushrooms

Type of fungus with multiple edible and inedible varieties.

5 ★ Great source of Fiber, Zinc & B Vitamins

4 ★ Good source of Calcium

Mushrooms

- Water footprint: **0.5** gal per ½ cup serving
- Carbon footprint: **Very low** (85 g CO₂e)
- Grows best in moist environments with temperatures around 70 degrees Fahrenheit.



Purslane

An abundant, edible weed.

4 ★ Good source of Iron, Calcium & Vitamin C

Purslane

- Water footprint: **Minimal** Water requirement. Some species can survive many days without Water.
- Capable of two types of photosynthesis (most plants use only one) that allow them to remain highly productive even in hot climates and survive with little Water

Water Footprints: Less than 10 gallons per 0.5 cup serving



Beets

Vibrant root vegetables known for their earthy flavor.

5 ★ Great source of Fiber, Iron, Zinc, Vitamins C & B

Beets

- Water footprint: **4** gal per ½ cup serving
- Carbon footprint: **Very low** (134 g CO₂e)
- Can withstand hot days



Carrots

This root vegetable can be linked to improving eye health.

5 ★ Great source of Fiber & Iron
4 ★ Good source of B Vitamins

Carrots

- Water footprint: **6** gal per ½ cup serving
- Carbon footprint: **Very low** (134 g CO₂e)
- Needs plenty of Water, but can still grow in hot conditions

Water Footprints: Less than 10 gallons per 0.5 cup serving



Tomatoes

One of the most popular garden vegetables.

5 ★ Great source of Vitamin C & Calcium

4 ★ Good source of Fiber & B Vitamins

Tomatoes

- Water footprint: **6** gal per ½ cup serving
- Carbon footprint: **Medium** (343 g CO₂e)
- Generally adaptable to hot climate



Pineapple

Tropical plant with fleshy, inner fruit and tough outer skin.

5 ★ Great source of Vitamin C

Pineapple

- Water footprint: **8** gal per ½ cup serving
- Carbon footprint: **Low** (201 g CO₂e)
- Need warmer temperatures to grow. Cannot withstand any cool or frost conditions.

Water Footprints: Less than 10 gallons per 0.5 cup serving



Fresh Herbs

Basil: 5 ★ Great source of Zinc, Calcium & Fiber

Chive: 5 ★ Great source of Vitamin C

Oregano: 5 ★ Great source of Iron, Calcium & Vitamin C

Fresh Herbs

All per ½ cup serving

- Basil Water footprint: about 9 gallons
- Fresh oregano Water footprint: Low
- Dried oregano Water footprint: 211 gallons
- Chives Water footprint: **8** gallons
- All 3 Carbon footprint: **Very low** (134 g CO₂e)



Potatoes

Starchy root vegetable with multiple varieties.

5 ★ Great source of Iron

4 ★ Good source of Vitamin C, Zinc & Calcium

Potatoes

- Water footprint: **9** gal per ½ cup serving
- Carbon footprint: **Very low** (150 g CO₂e)
- More tolerant of dry summers than other vegetables

Water Footprints: 10-19 gallons per 0.5 cup serving



Strawberry

High in antioxidants and manganese

4 ★ Good source of Folate or Vitamin B9

5 ★ Great source of Vitamin C

Strawberry

- Water footprint: **10** gal per ½ cup serving
- Carbon footprint: **Low** (265 g CO₂e)



Swiss Chard

Leafy green and type of beet that does not produce a root.

5 ★ Great source of Iron, Vitamin C, Calcium, Fiber & B Vitamins

Swiss Chard

- Water footprint: **10** gal per ½ cup serving
- Carbon footprint: **Low** Carbon footprint
- Tolerant of hot, dry conditions

Water Footprints: 10-19 gallons per 0.5 cup serving



Jalapeno Pepper

Medium sized chili pepper.
Rich in Vit. A and potassium.

- 5 ★ Great source of Vitamin C
- 4 ★ Good source of B Vitamins

Jalapeno Pepper

- Water footprint: about **11** gal per ½ cup serving
- Carbon footprint: **Low** (238 g CO₂e)
- Does well in prolonged heat, requires warm soil to germinate



Bell Pepper

Rounded, mostly hollow pepper with mild flavor ranging from bitter to sweet depending on color.

- 5 ★ Great source of Vitamin C & Fiber
- 4 ★ Good source of Iron & Zinc

Bell Pepper

- Water footprint: about **11** gal per ½ cup serving
- Carbon footprint: **Low** (238 g CO₂e)
- Does well in the heat, requires warm soil to germinate

Water Footprints: 10-19 gallons per 0.5 cup serving



Eggplant

Part of the nightshade family.

5 ★ Great source of Fiber, Iron, Calcium & B Vitamins

Eggplant

- Water footprint: **11** gal per ½ cup serving
- Carbon footprint: **Very low** (70 g CO₂e)
- Heat tolerant, require minimal Watering



Sweet Potato

Starchy root vegetable. Part of the morning glory family.

5 ★ Great source of Fiber & Vitamin C

4 ★ Good source of Iron, Zinc & Calcium

Sweet Potato

- Water footprint: **12** gal per ½ cup serving
- Carbon footprint: **Very low** (150 g CO₂e)
- Requires abundant Watering during the long growing season, but does grow well in the heat

Water Footprints: 10-19 gallons per 0.5 cup serving



Okra

A flowering plant with edible green seed pods.

5 ★ Great source of Iron, Calcium, Vit. D

4 ★ Good source of Fiber & B Vitamins

Okra

- Water footprint: **17** gal per ½ cup serving
- Carbon footprint: **Very low** (53 g CO₂e)
- Thrives in hot climates, but needs to be Watered and picked regularly



Blackberries

Invasive Himalayan Blackberries

5 ★ Great source of Vit. C, Fiber & Zinc

4 ★ Good source of B Vitamins

Blackberries

- Water footprint: **24** gal per ½ cup serving
- Carbon footprint: **Medium** (337 g CO₂e)
- Provides nectar and pollen consumed by pollinators, including honey bees
- Displaces vegetation and degrades habitat, contribute to river and stream bank erosion

Water Footprints: 20-100 gallons per 0.5 cup serving



Banana

A tropical fruit currently endangered of extinction due to climate change. High potassium food.

5 ★ Great source of Fiber, Zinc, Iron & B Vitamins

Banana

- Water footprint: **24** gal per ½ cup serving
- Carbon footprint: **Very low** (153 g CO₂e)
- Needs warm and wet conditions.
- Requires regular supply of Water and is sensitive to drought



Blueberry

This mighty berry is loaded with nutrients and antioxidants.

4 ★ Good source of Fiber

4 ★ Good source of Vitamin C

Blueberry

- Water footprint: **25** gal in ½ cup
- Carbon footprint: **Medium** (337 g CO₂e)

Water Footprints: 20-100 gallons per 0.5 cup serving



Artichoke

A variety of thistle used for food. The heart is the more commonly consumed part of the plant.

5 ★ Great source of Fiber

Artichoke

- Water footprint: **25** gal per ½ cup serving
- Carbon footprint: **Very low** (40 g CO₂e)
- Require cool summers, moisture, and cannot withstand frost.



Chickpeas

Part of the legume family and rich in plant protein.

5 ★ Great source of Fiber, Iron, Zinc & B Vitamins

4 ★ Good source of Calcium

Chickpeas

- Water footprint: **41** gal per ½ cup serving
- Carbon footprint: **Very low** (101 g CO₂e)
- Heat & drought tolerant, thrive in hot conditions

Water Footprints: 20-100 gallons per 0.5 cup serving



Wheat

Type of grass cultivated for its seed. Used to make flour.

5 ★ Great source of Fiber, Calcium & B Vitamins

Wheat

- Water footprint: **55** gal per ½ cup serving
- Carbon footprint: **Very low** (85 g CO₂e)
- Needs lots of sunshine, warm, but not hot growing conditions.



Lentils

Part of the legume family and a Good source of protein.

5 ★ Great source of Fiber, Iron, Zinc & B Vitamins

4 ★ Good source of Calcium

Lentils

- Water footprint: **57** gal per ½ cup serving
- Carbon footprint: **Very low** (79 g CO₂e)
- Heat & drought tolerant, thrive in hot conditions

Water Footprints: Nearly 600 gallons per 0.5 cup serving



Cacao

Dry, fermented beans used to make chocolate.

4 ★ Good source of Iron & Fiber

Cacao

- Water footprint: **595** gal per ½ cup serving
- Carbon footprint: **Medium (331 g CO₂e)**
- Need a very specific environment to flourish: uniform temperatures, high humidity, abundant rain, nitrogen-rich soil, and protection from wind

CACAO



COCOA



Cacao

Cacao beans are dried, fermented, and heated at a low temperature. The heat separates the fatty part of the bean from the rest.

PROS

- More antioxidants
- Cacao nibs are a great chocolate chip replacement

CONS

- Not as sweet as cocoa



Cocoa

Harvested the same way as cacao but heated at a high temperature, the final product is much sweeter than cacao.

PROS

- Sweeter tasting
- Better for baking

CONS

- More processed, decreasing antioxidants and nutrients

Clean Food®
CRUSH

What climate-resilient food is missing?

Characteristics:

1. Tolerates extreme temperatures well
2. Tolerates droughts
3. Strong immunity against pests and infections
4. Low carbon footprints



Please add your insights
at the
FCH GEM-Board
<https://beav.es/Tmp>

5 Minutes Break

Cultural Relevance, Respect & Inclusivity

How do we continue to stay culturally-relevant and respectful and inclusive in our programming and trying to reconcile our SNAP-Ed program mandate to be aligned with the Dietary Guidelines for Americans and MyPlate recommendations?

But how do we reconcile with other cultural food traditions that aren't from the US?

Artificial Sweetener: Sucralose

Sucralose and its impurity, sucralose-6-acetate are found to be genotoxic in animal studies, causing inflammation in the digestive tracts, esp. the ileum. Best to avoid.

Historical studies made the following 6 claims regarding sucralose:

1. Stability in vivo: Passes through the intestine unchanged.
2. Gut Microflora: No effect on gut microflora.
3. Intestinal Barrier: No effect on intestinal tissue.
4. Bioaccumulation: Does not bioaccumulate.
5. Metabolism: No effect on metabolism including blood glucose or insulin.

What are ways to teach children about climate resilience and food citizenship?

✓ Searching for: **climate resilience and food citizenship education for children**

✓ Generating answers for you...

Climate resilience and food citizenship are important topics to teach children, as they can help them understand the causes and consequences of climate change, and how they can take action to protect the environment and their health. Here are some ways to teach children about these topics:

- **Use interactive and experiential learning methods.** Children learn best when they are actively involved in the learning process, rather than passively listening to lectures or reading texts. For example, you can use games, simulations, experiments, field trips, or projects to engage children in exploring climate change and food issues. You can also encourage children to reflect on their own experiences and feelings, and share them with others. For example, you can ask children to keep a journal or a scrapbook of their observations and thoughts about the weather, seasons, plants, animals, food, and health ¹.
- **Connect local and global perspectives.** Children need to understand how climate change and food systems affect their own lives and communities, as well as the lives and communities of people in other parts of the world. For example, you can use maps, stories, videos, or photos to show children how different regions are experiencing climate change impacts, such as droughts, floods, storms, wildfires, or sea level rise ². You can also show children how different cultures and traditions use food as a source of nutrition, identity, and social connection ³. You can then help children compare and contrast their own situations with those of others, and discuss how they can support each other.
- **Empower children to take action.** Children need to feel that they have a role and a responsibility in addressing climate change and food challenges, and that they can make a difference. For example, you can help children identify and implement actions that they can take at home, at school, or in their community to reduce their environmental footprint, such as saving energy and water, recycling and composting waste, growing or buying local and organic food, or joining a campaign or a movement. You can also help children celebrate their achievements and share their learnings with others.

I hope this helps you find some ways to teach children about climate resilience and food citizenship. If you want some more inspiration, you can ask me to create a story, poem, essay, song or picture about these topics 🤖

Learn more: [1. weforum.org](#) [2. brookings.edu](#) [3. unicef.org](#)

2 of 5 ●



What are some examples of climate-resilient foods?

How can I make gardening fun for kids?



New topic



Ask me anything...



Use Artificial Intelligence (AI) to:

- Ask complex questions
- Get better answers
- Get creative inspiration to teach about nutrition.

Chat
GPT-4
Bing AI

Do you know
I hallucinate
too? 😊

Example: Planning for the Jr. Outdoor Food Navigators Camp

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**Chat
GPT-4
Bing AI**

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**Chat
GPT-4
Bing AI**

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2 of 5 ●

**Chat
GPT-4
Bing AI**

PLAY: Tryout Chat GPT-4

<https://beav.es/TmT>

Tips: Be very specific with your questions to get the best customized results. E.g., define a budget, class duration, target audience personas (gender, age, migration status), geographic location, health issues and belief system.



Non-Dairy Plant-Based Milk



Why the only non-dairy milk that's included in the Dairy Group is fortified soymilk?

What about all of the other non-dairy milk like rice milk and oat milk?

Where do they fall and why aren't they included?



Photo credit: www.Nutrition.org

Near Future Updates:

1. Coconut Oil and Other Tropical Oil
2. Caffeine
3. Gut Health
4. Dental Health

THANK YOU!

