MARCH 2021

Plant-Based Meals

An Eat REAL K-12 School Food Guide on How to Choose Nutritious Plant-Based Options that are Healthier for Students and the Planet

Prepared By: Eat REAL, a 501c3 nonprofit organization, and reviewed by Eat REAL's Chief Science Officer, Dr. Robert Lustig, Author, Board Member, Pediatric Endocrinologist

Why Plant-Based

Adding more healthy plant-based protein options in schools is beneficial for both human health and the environment. Our food system is a major contributor to climate change AND shortened human life spans. Our processed food system is responsible for around 1/4 of our greenhouse gas production and has made us reliant on overly processed foods high in sugar and low in fiber and micronutrients. It's key to choose minimally-processed, plant-powered menu options to support healthier children and our planet.

About this Guide

This guide is a tool for K-12 foodservice teams to make it easier to identify and serve nutritious plant-based protein options with minimal levels of processing. Many districts already offer some plant-based options, but where they fall on the processed food spectrum may not always be clear. This guide includes:

- Easy to understand definitions of the levels of processing of plant-based options and examples of foods across the spectrum (*Pages* 2-4)
- Nutrition benefits and concerns associated with different levels of processing (*Page* 5)
- Action steps to help you choose the most nutritious plant-based options for your school menu (*Pages* 6-8)

About Eat REAL

Eat REAL empowers school district food service leaders to increase access to high quality real food options and inspires students, schools, parents, and communities in their real food awareness journeys.

Understanding Plant-Based Protein Options in K-12 Food

Introduction

There is a continuum when it comes to plant-based options for your menu, from whole and minimally processed ingredients to ultra-processed products. **Just because it's plant-based doesn't mean it's good for you.** How processed an item is plays a major role in how healthy it is for humans.

Whenever possible, choose whole and minimally processed ingredients and products for the highest nutritional benefit.

Why?

Processing can strip whole foods of their beneficial nutrients such as fiber, vitamins, and minerals. In the case of ultra-processed foods, unnecessary and potentially harmful ingredients (added sugar, salts, and unhealthy fats) are also added to the food.

How?

Turn the page for a chart to use as a guide to understanding the levels of processing of plant-based foods using the internationally recognized NOVA classification system*.

A Note on the Word "Processed"

Scientifically speaking, a lot of what we eat today has been "processed" in some way as ingredients are transformed into recipes and products. Processing doesn't immediately mean something is "bad". The *level* and *type* of processing are critically important to understand. This guide focuses on helping you understand the continuum in levels of processing, particularly in purchased foods. The commonly used phrase "processed food" is generally referring to "ultra-processed," which will be explained throughout this guide.

**Note: THE NOVA classification system is the only one that takes into account food processing. It is becoming an international benchmark for classifying all types of foods. All definitions have been condensed by Eat REAL for the purposes of this guide.*

Processing Levels of Plant-Based Foods

WHOLE/MINIMALLY PROCESSED FOODS

- **Whole foods** include what directly came out of the ground.
- **Minimally processed foods** are **natural foods** altered by methods that include removal of inedible or unwanted parts, and simple processes to make them suitable for storage and use in the kitchen. (e.g. chopping, grinding, peeling)

(NOVA *Classification Groups* 1-2)

PROCESSED FOODS

- **Processed foods** are whole/minimally processed foods combined with processed culinary ingredients such as salt, unrefined sugar, starches and oils to enhance the food and packaged to make it ready to consume.
- **These products typically have 2-3 ingredients and the ingredients are recognizable as the whole ingredient they came from.**

Note: This is a broad category that can range from scratch cooked foods using prepared ingredients to those bordering on ultra-processed.

(NOVA *Classification Group* 3)

ULTRA-PROCESSED FOOD PRODUCTS

- **Ultra-processed food products** combine multiple food ingredients with artificial ingredients, colors, enhancers, flavors, and/or preservatives*
- These foods are **"manufactured" using industrial techniques not found in any kitchen**

Note: Also commonly referred to as "highly processed foods."

**These additional ingredients (and the extra additives and fillers) are added to increase shelf stability, preserve texture, and enhance taste.*

(NOVA *Classification Group* 4)

Processing Levels of Plant-Based Foods: Culinary Notes

WHOLE/MINIMALLY PROCESSED FOODS

Ingredients generally used to prepare fresh, scratch cooked meals in the kitchen:

- Homemade lentil burger or three bean chili made from legumes including beans, lentils and peas (fresh, frozen or dried and ground)
- Nuts and seeds (whole and ground)

PROCESSED FOODS

Prepared ingredients can be used as part of scratch cooked meals, but may also be consumed by themselves:

- Prepared hummus
- Nut and seed butters with added ingredients
- Veggie burgers with whole food ingredients
- Canned legumes*

**Many processed ingredients can be similar to scratch cooked. Pay attention to the types of additional ingredients added (e.g. do your canned beans include just beans, water and minimal salt or do they also include unnecessary preservatives?).*

ULTRA-PROCESSED FOOD PRODUCTS

Products are generally ready to consume after heating with no further preparation:

- Plant-based "nuggets"
- Crumbles and other meat-mimicking products
- Industrial veggie burgers (see next page visual)

LEVEL OF PROCESSING IS NOT A PERFECT SCIENCE!

Some foods will fall somewhere between processed and ultra-processed on the continuum of processing. Look for fewer and better ingredients when considering pre-made options. **If you wouldn't have an ingredient in your kitchen at home, try to avoid it in your pre-made items as well.**

Processing Levels of Plant-Based Foods: Nutrition

	Benefits	Concerns
WHOLE/MINIMALLY PROCESSED FOODS 	• **High in fiber** for good digestive health and stable blood sugar levels. • **High in unsaturated fats** for a healthy heart and cell membranes- protein for building strong muscles and bones. • **Vitamins and minerals** for overall healthy bodily functions • ***Extra benefit:*** plant-based proteins do not have risk of having unhealthy added hormones or antibiotics.	• **Incomplete proteins:** Unlike animal proteins, plant-based proteins are low in some of the essential amino acids our body needs to function. This is easily solved by eating a variety of plant-based options and pairing them with whole grains to meet a child's protein needs.
PROCESSED FOODS 	• Some processed foods can generally have **same nutrition benefits as whole/minimally processed** foods (e.g. low sodium canned beans) as long as they don't reach into the ultra-processed category or aren't prepared with unhealthy ingredients (e.g., unhealthy cooking oils like soybean oil or corn oil). • **Taste** can be better and more likely to be consumed - especially by children.	• **Added sugar** which spikes insulin and sets kids up for diabetes and other metabolic conditions. • **Added salt** which can lead to high blood pressure, heart disease, and stroke. It can also cause calcium loss, some of which may be pulled from the bones. • **Reduced levels of vitamins and minerals** (lost during processing)
ULTRA-PROCESSED FOOD PRODUCTS 	• **High in protein** to meet USDA meat/meat alt requirements. However, the level of processing counteracts the health benefits.	• **Lack of fiber, healthy fats, and loss of vitamins and minerals during processing** (when added as supplements, they're often poorly absorbed). • **Often include excess added sugar and salt** (see above). • **Unhealthy modified oils** cause inflammation resulting in numerous chronic diseases. • **Refined starches** change the bacteria in the gut putting you at risk for chronic disease. • Potential for **adverse reactions to food additives.**

Take Action!

Start by looking for the good:

Choose whole or minimally processed ingredients whenever possible: Use plant foods such as legumes, whole grains, vegetables, nuts/seeds (note: avoid nuts for K-5 students due to allergies), and healthy oils such as olive oil for cooking.

Season menu items with herbs and spices to add flavor and reduce reliance on added salts and sugars.

Avoid the not-so-good or down-right bad!

Avoid potentially harmful ingredients: common additives and fillers, with no nutritional value, found in ultra-processed plant-based products that have the potential to cause adverse reactions, especially in developing children:

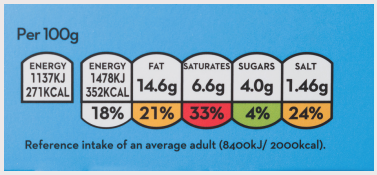
- Artificial preservatives
- Artificial colors/flavors/flavor enhancers
- Emulsifiers and thickeners
- Artificial and highly processed sweeteners (*e.g., high fructose corn syrup*)
- Anti-foaming, bulking, carbonating, pro-foaming, gelling, and glazing agents
- GMO and "invisible ingredients" (*glyphosates and other pesticides sprayed on plant-based foods). These may not be listed on the food label.*

Avoid excess added sugar and salt: - review the nutrition facts and ingredient label for these additions:

- **Added sugar** Kids should have less than 25 grams of added sugar a day! This is equal to no more than 6 teaspoons in total.
- **Sodium** Eat REAL encourages following the USDA's target 2 levels for sodium in NSLP meals. Sodium lurks in many food items and all together adds up for your students.

Label reading tips:

- Look for items with as few ingredients as possible and ingredients you recognize.
- Serving sizes on nutrition facts panels are often misleading. Consider the **actual amount** you serve when evaluating it for your menus to make sure you're not serving more sugar or sodium than you realize!



Did you know?

There are more than **262 ways that sugar can show up** on an ingredient label. It is important to become familiar with all the ways it can "hide" from you!

Learn more: hypoglycemia.org/added-sugar-repository/

Upgrading to Plant-Based: Different Ways to Swap Your Burger!

*The products named below are listed for example purposes only. Eat REAL does not endorse or reject any of the example brands.

WHOLE/MINIMALLY PROCESSED FOODS

Lentil Burger (scratch-made)

Ingredients

Red lentils, sweet potatoes, fresh basil, fresh cilantro, lime juice, soy sauce, rolled oats, spices.

Nutrition Impact

Great option where feasible using whole ingredients and minimally processed sub-ingredients.

PROCESSED FOODS

Don Lee Organic Plant-Based Burger (pre-made)

Ingredients

Organic plant-based crumbles (organic soy flour, water, organic cornstarch, organic plant oils [organic soybean and organic coconut], organic milled flaxseed), water, organic onion powder, organic natural flavors, organic beet powder, organic garlic, 2% or less of each: organic oats, organic spices, organic sugar, sea salt.

Nutrition Impact

Better for you pre-made option using organic ingredients and lower levels of processing; all ingredients except the "natural flavors" are recognizable and only slightly altered from original form

ULTRA-PROCESSED FOOD PRODUCTS

Impossible Burger (pre-made)

Ingredients

Water, Soy Protein Concentrate, Coconut Oil, Sunflower Oil, Natural Flavors, 2% Or Less Of: Potato Protein, Methylcellulose, Yeast Extract, Cultured Dextrose, Food Starch Modified, Soy Leghemoglobin, Salt, Mixed Tocopherols (Antioxidant), Soy Protein Isolate, Vitamins and Minerals (Zinc Gluconate, Thiamine Hydrochloride (Vitamin B1), Niacin, Pyridoxine Hydrochloride (Vitamin B6), Riboflavin (Vitamin B2), Vitamin B12).

Nutrition Impact

Highly processed option using chemically altered forms of ingredients which reduce nutritional benefits and could be harmful; many ingredients are not recognizable as connected to specific food products; the vitamins and minerals added through ultra-processing can mean the original plant protein was lacking and it can be difficult for the body to absorb them in this form.

Summary & Key Takeaways

Adding planted-based proteins to your menus is a great way to help both your students' health and to reduce your environmental footprint. When adding plant-based menu options, focus on **choosing whole and minimally processed ingredients** for the highest nutritional value, whether you are cooking from scratch or using pre-made items.

- **Read the label:** Remember to read the label on all food products - whether you are buying ingredients for a scratch/speed scratch recipe or choosing a pre-made item.
  - Focus on the ingredient lists. Shorter list = generally better.
  - Choose products without artificial flavors, colors, preservatives, and other additives meant to make the food highly palatable and addictive - these also make it less nutritious!
  - Watch out for excess sugar, salt, and unhealthy oils.
  - Watch out for interesterified vegetable oils. These are a highly processed form of fat used in the place of now-banned trans fats in manufactured foods. There is limited research on the nutritional benefit or danger of these ingredients. These are being added without disclosure and with limited data.
- **Work with your vendors:** Often they can upgrade their products for you.
  - Some vendors have a range of choices and it is worth asking for their simplest options.
  - Ask your peers for vendor suggestions. More demand = more options!
- **A few changes make a big difference:** You don't have to change your whole menu - start with 1-2 entree options a week and you can have a big impact.
- **Choose responsibly sourced:** Whenever possible, it's best to choose local, pesticide-free, and ideally organic plant-based options.

It's key to consider the total nutrition of the meal you're creating and ensure that the upgrade you're making with new plant-based options is all-around healthier - for students and the planet.

You Have Power!

Your purchasing decisions can create a healthier next generation and planet. YOU can redesign our food system!

Additional Resources/Information:

- NOVA definition paper
- The State of School Lunch in CA - Friends of the Earth
- The Power of Plant-Based Proteins
- Synthetic Ingredients in Natural Flavors and Natural Flavors in Artificial flavors
- Metabolical (Robertlustig.com)
- Salt and Sodium
- Eat More Plant-Based Proteins to Boost Longevity
- Soy Protein Concentrate
- Pea Protein - Everything You Need to Know
- CDE CNP Plant-Based Meal Policy Guidelines