



Natural Color Trends, Market Needs & Gaps

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Agenda

Global Consumer Trends & Natural Color Opportunities

Market Needs & Gaps in Natural Colors

ADM Colors from Nature® Innovation Spotlight - PearlEdge™

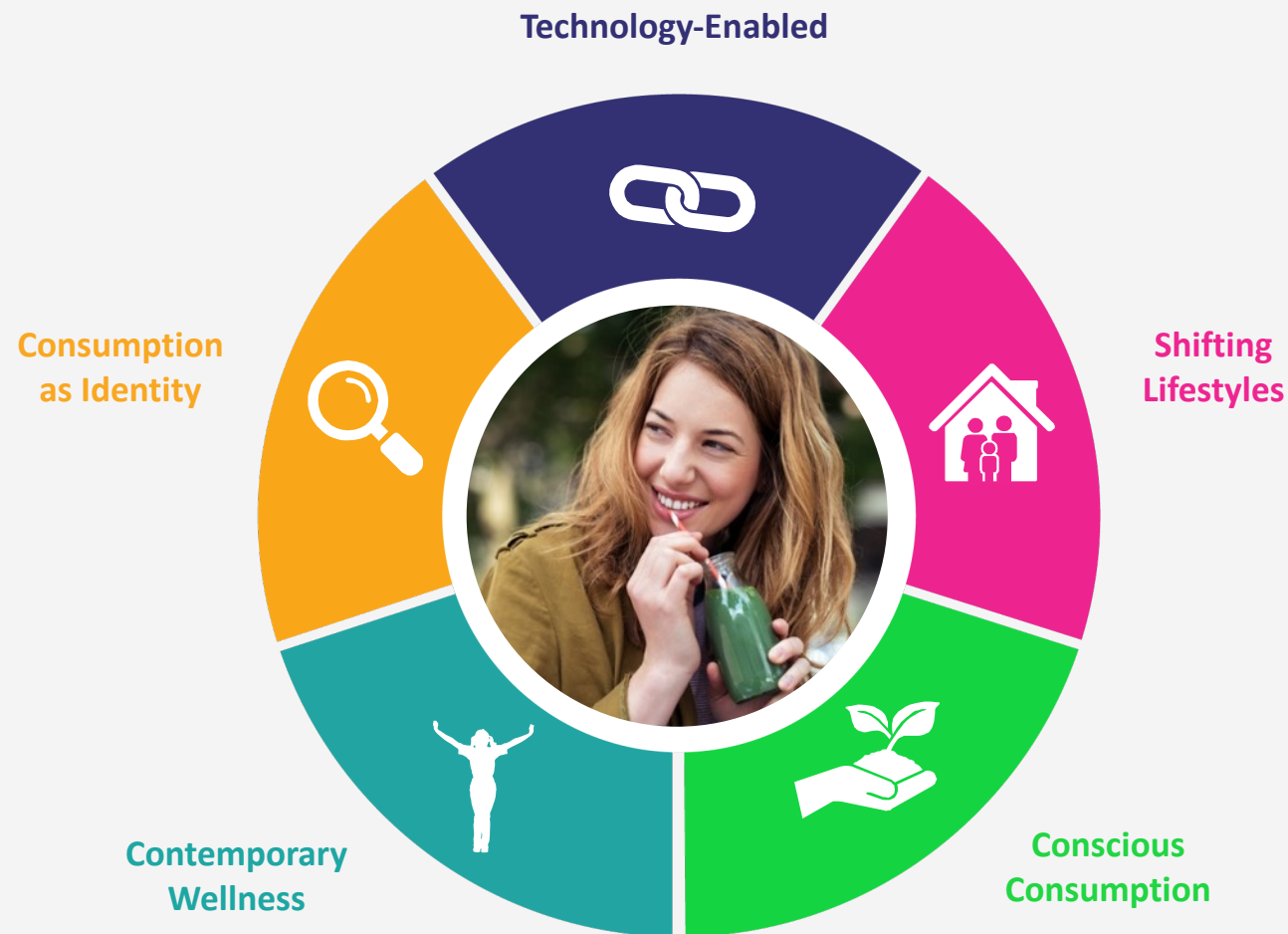
The Product Developer's Toolkit to Support Innovation

Regulatory Considerations & Potential Impacts

ADM Global Trends & Impacts for the Consumer



Global Trends Shaping Consumer Behavior and Our Portfolio



Consumer Trends in Food & Beverage



Contemporary Wellness

- Consumers are increasingly seeking out products with natural ingredients and cleaner labels.
- This has caused natural colors to become a new hero ingredient in food and beverage.

Conscious Consumption

- People are making purposeful consumption decisions and shopping for their values to fuel change.
- This has led to brands embracing transparency and sustainability in colors as well.

Shifting Lifestyles

- As people move to urban areas, the global number of people living alone has increased, along with dining alone.
- Consumers are turning to social media as a way of sharing their experiences, as well as sharing in the experiences of others.

Consumption as Identity

- Groups of people bound together by a common set of philosophies that guide their food behaviors and lifestyle.
- From clean eating to organic lifestyles and everything in between, consumption is aligned with brands and products that reflect personal identity.

Technology Enabled

- Consumer culture and trends now occur online and are reflected at the register.
- This cultural evolution has made the color of a product more important than ever before, as visual appearance is key to engaging digital content.

Market Needs & Gaps



Innovation Agility in the Age of Social Media

- Food & Beverage trends on social media often cause ripple effects in the market
- Manufacturers and suppliers need to be prepared for unexpected opportunities for innovation
- **2022 Viral “Pink Sauce” was viewed more than 560 Million times** and led to a brand deal with Dave’s Gourmet Sauce whose products are found at major retailers such as Walmart, Whole Foods & Amazon

“Sweet bakery launches with an ingredient derived red colour have gained profile in China, aligning with social media’s focus on vibrant colours.”

Mintel GNDP, June 2020-May 2022



Watch ADM’s Chief Global Flavorist, Marie Wright tastes ‘pink sauce’ recreated by ADM’s Culinary Team and discussed on popular website Pop Sugar

[A Professional "Flavorist" Tells Us What Pink Sauce Tastes Like — and Why We Love Pink Food](#)

Recognizing Market Gaps & Creating Innovative Products

1. Cleaner Label White Solution to Replace Titanium Dioxide

- TiO_2 Banned as Food Additive in E.U. as of August 2022
- Negative Consumer Perception Globally
- Limited Application Success with other replacements

ADM Innovation: PearlEdge™

A Dynamic Portfolio of Whitening Solutions designed to meet industry needs in multiple applications

2. Naturally Derived Blue

- Blue is rare in nature and solution must be stable
- Naturally derived options have been limited by poor application functionality and regulatory restrictions

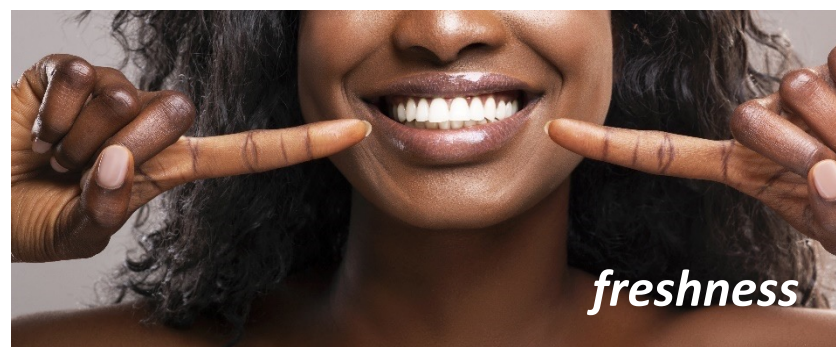
ADM Innovation: Huito Blue

*The industry's only **patented acid, light and heat stable blue color** from Huito fruit—making it possible to achieve various shades of **blue** from a natural source.*

“In Brazil, 37% of Carbonated Soft Drink consumers are willing to buy soda made with natural ingredients, even if they are more expensive.”

Mintel GNPD, June 2020 – July 2022

The Importance of Bright White as a Color





PearlEdge™
COLORS FROM NATURE

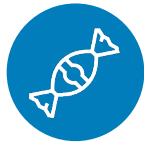
Your Edge in natural, bright, clean label solutions for white

*Our **PATENT PENDING** and **PROPRIETARY FORMULAS** for naturally sourced white help you deliver a **CLEAN LABEL** on **STABLE**, bright white products for the visual appeal. Through **VERTICAL INTEGRATION**, **TECHNICAL INGENUITY**, and **FORMULATIONAL KNOW-HOW**, ADM adds white to complete portfolio of Colors from Nature®.*



Products and Application Areas

We support developers with an ever-expanding portfolio of naturally sourced white color solutions for a variety of application areas including:



Confections (Candy and Chewing gums)



Powdered Drinks & Mixes



Baked Goods



Beverages (Alcoholic and Non-alcoholic)



Meat Alternatives



Pet Food & Treats



Dairy & Dairy Alternatives



Soups, Sauces & Dressings



The Product Developer's Toolkit

How to support innovation and meet market needs & gaps



Complete & Diverse
Color Portfolio



Suitable Product
Forms & Application
Expertise



Innovative Color
Products Aligned with
Consumer Demand



Compatible Non-Color
Ingredients



High Quality
Ingredients



Sustainability

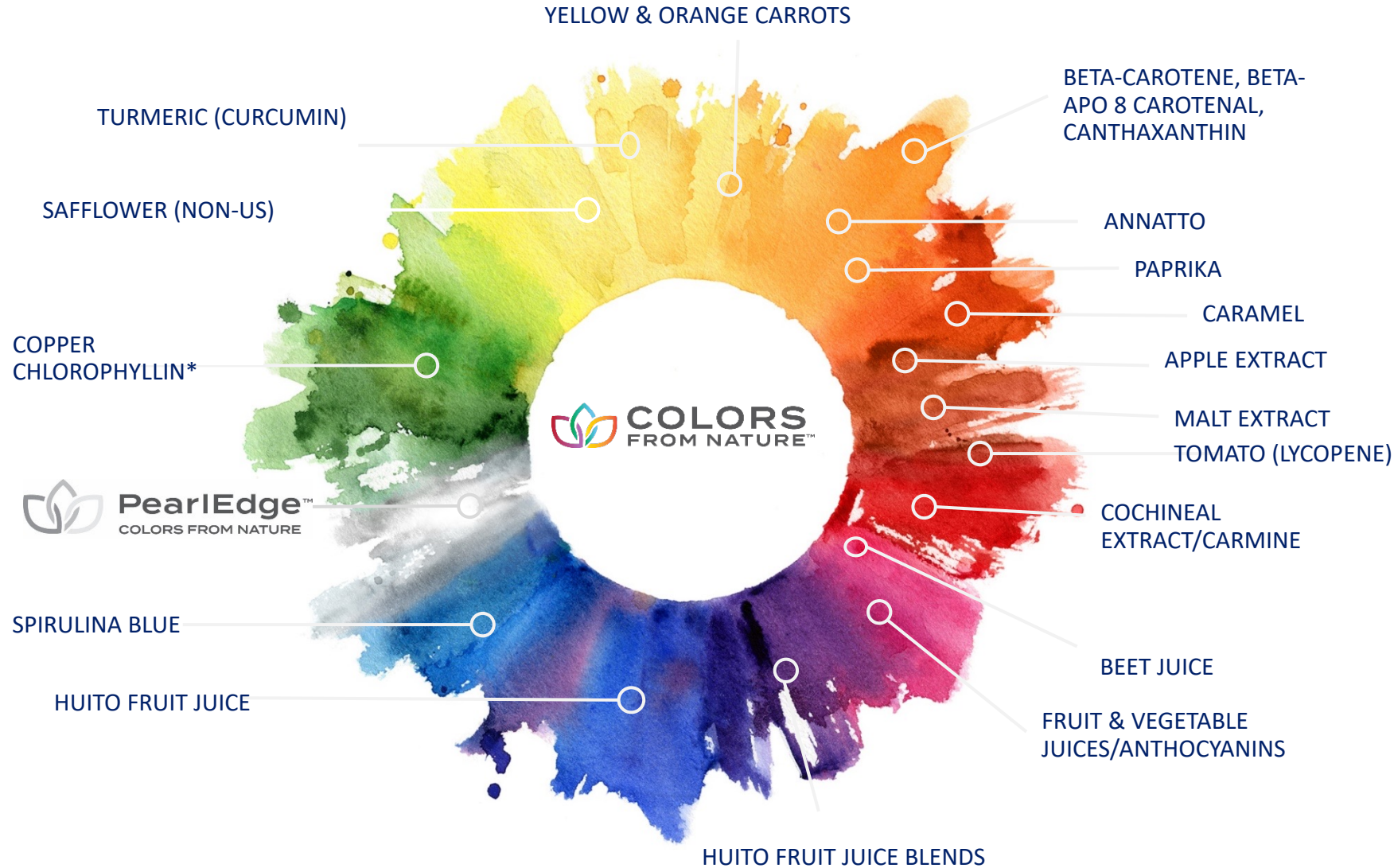


Regulatory Approval



Safety & Security

Complete Portfolio of Naturally Derived Color Solutions



**Limited Applications*

Blends

Liquid

Powder

Water soluble

Oil soluble

Emulsions (Cloudy & Semi-Cloudy)

Patented Clear Emulsions (ADM)

Dispersions

Coloring Foodstuff

Organic Certified

Organic Compliant

Micronized Colors

Additional options:

Non-GMO, Kosher, Halal

**With our custom blends,
we can achieve virtually
infinite shades covering
the complete color spectrum
and application range.**



Using Suitable Color Product Forms

Compressed Tablets



Uncolored



Standard Color



ADM Micronized Color

Dry Powder Beverage Mix



Standard Powder

ADM Micronized Technology

Beverage



Stable Carotenoid Color with ADM Emulsion Technology

Unstable Carotenoid Color without Emulsion Technology

Colors for Every Application

Two portfolios available:

(1) Micronized powder
(Water soluble)

(2) Micronized liquid
(Oil soluble)



Compatible Ingredients for Food and Beverage Systems

- Flavors
- Acidulants, sweeteners, oils (canola, coconut, corn, cottonseed, soybean, palm, sunflower etc.), stabilizers
- Botanicals for flavors and health
- Innovative health ingredients: protein alternatives (pea, soy, textured protein ingredients, wheat), dietary supplements
- Microbiome solutions (prebiotics, probiotics, postbiotics)
- Texturants (emulsifiers, hydrocolloids, hydrocolloid solutions)
- Functional native and modified starches
- Nuts, fruits, seeds, legumes and ancient grains



Applications Expertise

We support developers with an ever-expanding portfolio of on-trend Colors from Nature® for a variety of application areas including:



Alcohol



Cereals



Fats & Oils



Snacks



Bakery



Confectionery



Ice Cream &
Frozen Desserts



Sauces &
Dressings



Beverages



Dairy



Pasta



Nutraceutical



Breadings



Dry Mixes



Plant-Based
Protein



Pet Food

High Quality Ingredients

Ingredient Characteristics:

- Solvents levels
- Pesticides levels
- Heavy metals
- Microbiological Quality

Clean Label Colors and Diluents:

- Naturally Derived
- Organic
- Solvent Free
- Sustainably Sourced



“Strive 35” Sustainability

Strive35



Alison Taylor, ADM Chief
Sustainability Officer

“Through our unwavering commitment to sustainability, together under our new banner we will build upon our prior successes, striving to achieve a stronger ADM and a better world.”



GHG Emissions

25%

reduction by 2035 over 2019 baseline



Energy Intensity

15%

reduction by 2035 over 2019 baseline



Water

10%

reduction per ton of product produced at our largest sites by 2035 over 2019 baseline

Develop a global strategy focused on improving community wellbeing in priority watersheds including water-stressed areas by 2025



Waste

90%

At least 90% to be beneficially reused, recycled, or otherwise diverted from landfill by 2035

Building a more sustainable value chain at every step

Working together, we can build a more sustainable food system throughout the entire supply chain.



Regulatory Considerations for Color Ingredients

- Understanding regulations governing the use of color ingredients is paramount for successful commercial product development
- Regulations are not homogeneous and are set by various regional entities such as the FDA (U.S.) and European Commission (E.U.)

U.S. Color Additive Regulations (set by FDA)

- **Part 73, Subpart A** : Color additives exempt from batch certification
- **Part 74, Subpart A** : Color additives subject to batch certification

E.U. Color Regulations (set by European Commission)

- E Numbers E100-E199
- Colouring Foods



Comparison of Black Carrot - USA & EU Regulations

United States

- Assignment in the Standard : 73.260
- Nomenclature : Vegetable Juice
- **Identity:** The color additive vegetable juice is prepared either by expressing the juice from mature varieties of fresh, edible vegetables, or by the water infusion of the dried vegetable. The color additive may be concentrated or dried. The definition of vegetable juice in this paragraph is for the purpose of identity as a color additive only, and shall not be construed as a standard of identity under section 401 of the act. However, where a standard of identity for a particular vegetable juice has been promulgated under section 401 of the act, it shall conform to such standard.

European Union

- Assignment in the Standard : E163 (EU No 231/2012)
- Nomenclature : Anthocyanins
- Definition: Anthocyanins are obtained by maceration or extraction with sulphited water, acidified water, carbon dioxide, methanol or ethanol from the strains of vegetables and edible fruits, with subsequent concentration and/or purification if necessary. The resulting product can be transformed into powder by an industrial drying process. Anthocyanins contain common components of the source material, namely anthocyanine, organic acids, tannins, sugars, minerals etc., but not necessarily in the same proportions as found in the source material.



Comparison of Black Carrot - USA & EU Regulations

United States

Identity (*contd..*)

- Color additive mixtures made with vegetable juice may contain as diluents only those substances listed in this subpart as safe and suitable in color additive mixtures for coloring foods.
- Uses and restrictions: Vegetable juice may be safely used for the coloring of foods generally, in amounts consistent with good manufacturing practice, except that it may not be used to color foods for which standards of identity have been promulgated under section 401 of the act, unless the use of added color is authorized by such standards.

European Union

- Description : Purplish-red liquid, powder or paste, having a slight characteristic odour
- Chemical Name : Cyanidin, Petunidin, Malvidin, Delphinidin
- Identification: Spectrophotometry - maximum in methanol with 0.01% conc HCL . Cyanidin 535 nm
- Purity :
 - Solvent residues
 - SO₂
 - Heavy metal levels
- Restriction : Allowed at *quantum satis* although in select applications (Reg 1333/2008 as amended)



Key Takeaways/ Summary



Choose a supplier with application expertise and portfolio diversity



Suitable product forms need to be used for maximum efficacy and economic efficiency



Partner with an innovative company that understands current and future market needs and gaps



Choose partners with clear environmental, sustainability and safety standards



Consider regional regulations before using the color products in applications

Thank You

