Alternative PROTEINS
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The push is on. A multitude of food industry stakeholders advocate increased consumption of plant-based foods.

“Plant-based products are not only sought after by core vegan or vegetarian consumers, but by shoppers aspiring to have a healthier diet or following a flexitarian lifestyle,” points out Mandy Bottomlee, director of content marketing at Good Foods Group (goodfoods.com), which makes mostly plant-based dips, salad dressings and juices.

Fortunately, “Formulators of processed foods and beverages have an abundance of protein sources from which to choose,” says B. Pam Ismail, professor in the Dept. of Food Science and Nutrition at University of Minnesota and director of the Plant Protein Innovation Center (PPIC). “Cost, supply reliability and safety are important factors. Additionally, much research is going into how to improve emerging plant proteins’ key attributes of flavor, functionality and nutrition.”

Consumers frequently compare taste and nutritional attributes of plant-based alternatives to traditional animal based-products, with animal sources often holding their own. Some three in 10 respondents to International Food Information Council’s 2020 Food & Health Survey report never consuming plant-based meat and dairy alternatives.

However, the same survey found the perceived healthfulness of animal protein is up since 2019. Thoughtful formulation efforts and advancing plant protein technologies can improve the competitiveness of these sources.

For example, almonds possess 6g of protein and 4g of fiber per one-ounce serving, says Harbinder Maan, associate director of trade marketing and stewardship at Almond Board of California (www.almonds.com). While whole, flaked and granulated almonds provide visual and texture appeal to foods, almond flour, available in a variety of forms and grinds, including defatted
almond flour—also known as almond protein powder—offers increased flexibility in formulating products.

The Protein Digestibility-Corrected Amino Acid Score (PDCAAS) of a formulated food is an important factor for nutritionists and increasingly to product developers. This score relates to a protein’s quality based on human amino acid requirements and the ability to digest the protein. A higher PDCAAS value for a consumer product means a higher percent daily value (%DV) and the possibility of making a protein marketing claims.

Ingredient blending tactics can increase that score. To help a product achieve a higher %DV, almond protein can be combined with a complimentary protein for a more optimal amino acid profile, notes Swati Kalgaonkar, associate director of nutrition research at the Almond Board.

The USDA’s FoodData Central lists 100g unroasted almonds as having 0.568g lysine, 0.157g methionine and 0.215g cysteine. Blending such an ingredient with legume or pulse-based products that are lower in methionine and cysteine may be able to improve the overall %DV of a product while listing consumer-friendly ingredients on the label.

MIMICKING MEAT

“Over the past decade, sales of plant-based ‘meat’ have skyrocketed, with U.S. grocery sales rising to $939 million,” says Jacquelyn Schuh, product marketing director for alternative proteins & specialty ingredients at ADM (www.adm.com). “Today, 44% of North American consumers self-identify as flexitarian, prioritizing a reduction in overall meat consumption and adding more plant-based foods to their diets.”

Plant-based meat alternatives are often looked at as a new category. However, industrially produced plant-based analogues have been around for over half a century, especially at ADM.

“The original textured vegetable protein or TVP, which we helped to formulate and is a trademark of ADM, was invented by William T. Atkinson in the 1950s and 1960s,” says Schuh. Atkinson developed a process to “texturize” soy flour into a meat-like substance using an extruder with mechanical shear and heat, combined with the injection of water. “The original TVP was a fibrous, spongy material used as a stand-alone meat alternative product, as well a nutritional extender in meat and poultry products to reduce costs and increase protein content.”

Through the years, technological advances in processing and ingredients led ADM to expand its textured protein portfolio. Ingredients with more neutral flavor and light color profiles were developed to ensure that product developers could start with a “blank slate” when creating applications such as chicken, fish and seafood.
Other examples of ingredients designed for specific applications include ADM’s recently introduced lines of textured pea proteins and textured and non-textured wheat proteins. Prolite MeatTex and Prolite MeatXT wheat proteins contribute meat-like texture for meat and seafood alternative products.

Knowing the importance of PDCAAS led ADM to develop its Arcon T textured pea protein ingredients. One form blends pea and chickpea protein, while a second blends pea protein and navy beans. “They deliver improved hydration properties and offer a higher PDCAAS score,” says Schuh.

To meet specific label requirements and desired finished product attributes, formulators can move beyond use of whole components such as nuts, seeds, pulses and textured protein ingredients to add functional protein powders. “Consumers often want a plant-based chicken-style patty to have the same appearance, bite and flavor as a traditional chicken,” says Schuh. One tactic is to blend a high-quality textured soy protein concentrate with an ingredient like ADM’s ProFam soy protein isolate.

**PERFORMING PROTEIN PROPERTIES**

With decades of research and commercial development behind soy ingredients, they still dominate the plant protein marketplace due to their benefits as fortifiers and functional additives.

However, “Pea proteins have increasingly competed with soy in the past five years,” says Ismail. Currently there is a lot of research into enhancing their production processes to expand the functionality of these ingredients. Other market newcomers such as flours and proteins from other pulses (e.g., chickpeas, lentils, fava and mung beans) have similar environmental benefits and are being looked at for their nutrition and functionality.

Innova Market Insights data from this June analyzed the top five ingredients used as alternative proteins (as a percent of 2019 global food and beverage launches tracked with alternative proteins). Wheat gluten was used in 44% of the new products; soy protein and soy protein isolate in 17% and 11% respectively; hydrolyzed vegetable protein and pea protein each claimed 8% of new launches.

“Research is ongoing into how to improve the functional properties of the many emerging plant-based alternative proteins,” says Ismail. Although there are protein powders such as hemp, sunflower and others for consumer, foodservice and other users who simply wish to blend extra protein into a product, more research is required if used for functionality in industrial formulations, Ismail adds...
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TRENDING IN 2020

Consumers continue to drive change and innovation.

Top three trends to track in 2020:

• Adventurous
• Into Discovery
• Changing Eating Patterns
• Looking for Convenience
• Eating with Purpose

Today’s consumers are

44% of the population identifies as flexitarian. — Outside Voice Consumer Study, 2019

Flexitarians account for 37% of alternative meat buyers. — Nielsen, 2019

98% of meat alternative consumers also purchase meat, and they buy more than the average meat buyer. — Nielsen, 2019

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Look for more plant-based applications to hit the shelves this year as food manufacturers develop applications that deliver the taste consumers seek with cleaner and shorter labels.
Consumers are embracing holistic health — and the role food can have on their physical, mental and emotional well-being.

37% of consumers use foods as a functional tool to reach health goals. — Tastewise, 2019

66% of young consumers don’t mind paying more for healthier options.
— Convenience Store News, 2019

As consumers take charge of their health through the foods they choose, expect to see more better-for-you options with premium pricing.

Snacking is preferred to eating meals for 59% of adults worldwide.
— Mondelez International’s “State of Snacking” report, 2019

49% of adults view snacks as an important part of a healthy eating plan throughout the day.
— IRI 2019 Snacking Survey

95% of U.S. adults snack daily, and 70% do so two or more times per day. — Mintel, 2019

Three sit-down meals a day is a thing of the past, and today’s consumers demand convenience for their busy lifestyles. We expect to see launches of innovative snacks customized to fit specific dietary needs.
IT’S TIME to redefine plant protein, pure and simple.

We have been working tirelessly for the last year to bring our product portfolio and production facility to life, and we’re thrilled to announce that we are nearly live and ready for business! Contact us today to get connected with plant protein that exceeds standards for purity, solubility, and taste – putting more nutritious and better tasting functional foods and beverages within reach.
As global economic growth drives demand for animal-sourced protein, environmental concerns and recent innovations have sparked a renaissance in alternative applications made with plant-based protein sources. Ingredients such as pea and canola protein are rising stars in the meat and dairy alternative space as new manufacturing process technology has improved the functionality of these ingredients.

For example, plant-based burgers and milk alternatives have successfully recreated much of the sensory experience of their beef and dairy counterparts. However, as successful as food and beverage brands have been at launching new plant-based, high-protein products, this success relies on ingredient solutions that overcome plant proteins’ limitations in formulation and processing.

Every plant-based protein ingredient has its own functional advantages and difficulties; no one single protein can achieve the unique functionalities of animal proteins. Therefore, when it comes to developing plant-based applications, it is advantageous to have access to as many ingredient options as possible.

Adding to the formulator’s toolbox, Merit Functional Foods recently introduced Puratein® HS, a new, high purity canola protein with premium solubility and a minimum 90% protein content. Puratein® HS is produced using Merit’s proprietary water-based, hexane-free extraction process that ensures exceptionally high purity. Versatile and functional, Puratein® HS offers benefits that solve many of the traditional taste and texture challenges related to plant protein.

The functional benefits of Puratein® HS include superior whipping and foaming, high oil binding capacity combined with low water binding capacity, light color, and exceptional solubility. Grown and produced
in Canada, this non-GMO canola protein ingredient opens up new opportunities for food and beverage brands to meet growing demand for dairy alternatives, traditional and gluten-free bakery, extruded snacks, high protein bars, and more.

HEALTHY APPEAL AND RISING DEMAND FOR PROTEIN
The world is growing and consuming more protein. However, the state of consumer demand for protein is in flux. As developing nations become more prosperous, more individuals are consuming livestock, poultry, and milk. At the same time, the world is becoming more aware of the environmental pressures these food choices are placing on the planet and are looking to incorporate plant-based foods into their diet. It should be noted that while the trend is toward more plant-based products, most consumers will not eliminate animal protein altogether.

In fact, the so-called “flexitarian” diet is rising in popularity because it gives consumers more options to make a positive impact, on the world and their personal health, through a balanced, diverse diet.

Leading health organizations such as the American Heart Association and the American Institute for Cancer Research are increasingly recommending that consumers adopt a plant-forward diet. Consumers appear to be paying attention, as more and more view protein as essential for health. According to Nielsen, over half of U.S. consumers view “high protein” as an important consideration when buying food. Moreover, a recent study from NPD shows that 90% of consumers read product labels and consider them an important source of information. According to NPD, consumers are checking labels and nutritional fact panels to see how much sugar, sodium, and protein is in a product.

The health appeal of protein factors heavily into consumer purchase decisions. In general, consumers view plant-based proteins as healthy and wholesome. Data from the International Food Information Council Foundation found that as much as 70% of consumers view plant-based options as the healthiest protein sources.

OTHER OPPORTUNITIES WITH CANOLA PROTEIN
For a variety of reasons, canola protein is compelling to consumers. Awareness of canola protein is limited, due to the fact that there are not currently other food-grade sources of it available on the market. However, third-party research conducted on behalf of Merit shows that plant-based consumers are highly likely to purchase products made with canola protein and are even more likely...

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