Time-Tested Ingredients Find New Life in Snacks

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Consumer demand for label-friendly, healthful ingredients is generating new interest in established ingredients, especially among puffed, pan-cracked and extruded snack makers. Corn bran, basic starches and whole grain flours are just a few of the time-tested ingredients finding their way back into vogue, as product developers adapt to consumer demands for great-tasting snacks made with simple, recognizable ingredients.

"For many customers, clean label really translates into pantry friendly," explains Chad Rieschl, senior research technologist at Cargill. "Corn starch, corn flour and even corn syrup are all ingredients consumers understand, find in the supermarket, and may have in their kitchen."

In this market environment, extruded snacks provide some distinct advantages. As a whole, these products are already relatively label-friendly. Simple bases, made with corn, rice, wheat or another grain, typically serve as the foundation. With pan-cracked snacks, modified starches are a common component, which can lead to some label-friendliness questions.

Functional and affordable, modified starches can play a role in creating crispy, crunchy textures without frying. However, when customers scrutinize their ingredient decks with an eye toward label-friendly ingredients, modified starches are also one of the first components to raise questions. Fortunately, Cargill has a number of unmodified starch options, including corn and tapioca, to help customers clean up product labels. The challenge is determining which native starches best replicate the role of modified starch in a given product since the base material can determine the final textural properties. While this usually requires extensive research and development work, partnering with an experienced ingredient supplier can speed the process.

Rieschl has created a number of label-friendly pan-cracked prototypes, including a cheesy sriracha pan-cracked peanut made with native waxy corn starch. "It's a customer favorite that serves as a great example of a label-friendly snack product that has a crunch you can 'hear' in your ear," Rieschl says.

Baked-in Benefits

Beyond the clean-label trend, consumers continue to express interest in snack options perceived to be healthy. Here too, extruded snacks can deliver. Already boasting "baked not fried" claims, snack makers can also boost fiber or protein levels.

One approach to creating an extruded snack with a better nutritional profile is to leverage older tools. For example, a product developer might use corn bran or whole grains to improve the nutritional profile of a snack. Corn bran can provide a boost in dietary fiber, at low to minimal inclusion rates, while whole grain corn products may help with a whole grain claim. Beyond their nutritional benefits, consumers are familiar with these ingredients, and they can give products an artisan-made, rustic appearance – a desirable look for many consumers.

The challenge, says Rieschl, is that ingredients containing insoluble fibers may alter the texture and density of the snack piece. Still, formulators can compensate for the texture changes by increasing or adding ingredients with greater expansion properties, such as certain starches or better puffing grains like rice, or altering processing conditions by modifying the die opening, screw speed, temperature profile or screw configuration.

Extruded snacks are also a fantastic vehicle for packing in extra protein. In particular, there's growing interest in using unique plant proteins from non-major food allergen sources to create extruded snacks that deliver nutritional benefits and different organoleptic experiences.

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"When you work with some of the new plant-based proteins, off flavors can be a challenge," Rieschl admits. "The trick is to match the proteins to the snack product. Adding a lot of plant proteins to a sweet snack might not be the best fit, but put those same proteins in a snack with a savory profile, and you can create a high-protein snack with a great flavor."

Finding the right protein source and blend can also help manage flavor issues. For example, Cargill's pea protein is not processed with chemical solvents. This helps to minimize the off flavors normally attributed to pulses. Having a great base flavor profile as a starting point makes it that much easier for product developers to find the right protein blend and achieve their flavor targets.

Increasing protein levels can cause other minor challenges in processing. For example, higher protein content generally decreases the density of the mix as proteins tend to hydrate and compete for water. To compensate, snack makers may need to use a preconditioner, or create a configuration to maximize shear and mixing.

In recent years, products with added fiber and protein performed well in the snack market, but with label changes looming, sugar reduction may well be the next big thing. The label changes to the Nutrition Facts panels will put calories in larger, bold font and call out added-sugar content. Those modifications could make sugar levels top-of-mind for consumers and encourage snack manufacturers to put more focus on sugar reduction. In anticipation, Cargill's researchers have already begun experimenting with reduced-sugar snack prototypes. At IFT 2017, Cargill will sample Rieschl's most recent creation, a 50 percent reduced-sugar candied popcorn made with reduced-sugar corn syrup, Zerose® erythritol and ViaTech® stevia sweetener. The result is a great-tasting product that coats, cooks and has a great crunch, just like its full-sugar equivalent.

Beyond nutritional enhancements, a growing number of consumers want to know what's in a product, and how those ingredients are made. It's that concern that has demand for non-GMO ingredients increasing at a slow, but steady pace. In response, Cargill recently received Non-GMO Project Verification for a number of products, including dry corn ingredients, corn syrups, native starches and stevia sweeteners.

"For many of our customers considering non-GMO products, the seasonings side of the formulation can present a challenge," Rieschl acknowledges. "It usually takes more work to create a label-friendly, non-GMO seasoning. However, as this market evolves, we have reliable supplies of non-GMO options for customers interested in tapping into this current 'niche' market."

Flavor Finishes

While clean label may be the buzzword of the moment, taste remains critical to any snack's success. In today's market, consumers are often looking for fresh and different, continually seeking out new products with limited loyalty to any particular brand or product. Against that backdrop, extruded snacks offer the flexibility to create unique flavors and textures that reflect current consumer trends.

"Popped chips were fun and offered a unique texture experience," Rieschl explains, "but much of the extruded snack innovation is tied to the flavor. The challenge for today's snack maker is to deliver distinctive flavor experiences that keep customers coming back for more."

Survey the consumer snack landscape and it's clear, extruded snacks offer manufacturers distinct opportunities to capitalize on today's hottest trends. "These snacks can deliver on consumers' expectations, but it takes a willingness to experiment," Rieschl concludes. "With a bit of creativity, product developers can develop label-friendly snacks that use natural plant fibers and unique protein blends to create products that really stand out in the marketplace."

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