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PepsiCo reshuffles management team

PURCHASE, N.Y. — PepsiCo, Inc. on March 30 announced a series of senior executive changes, including the departure of Tom Greco, chief executive officer of Frito-Lay North America (F.L.N.A.) and the appointment of Al Carey to c.e.o. of all PepsiCo's North American businesses.

In his new role, Mr. Carey will oversee PepsiCo's North American Beverage business unit, F.L.N.A. and Quaker Foods North America (Q.F.N.A.). PepsiCo said bringing the company's three North America businesses under a single leader is expected to enable the company to further leverage its complementary brand portfolio across snacks, beverages and

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Pinnacle's migration into health and wellness

PARSIPPANY, N.J. — In 2009 Pinnacle Foods Inc. had one brand it considered a part of the health and wellness category — Vlasic pickles. Today, with such businesses as Birds Eye, Gardein and the recently acquired Boulder Brands, the company has made a significant investment in health and wellness. Central to the company's strategy are plants and plant-based protein.

"We actually think we are at a tipping point in terms of people starting to look at plants as an alternative to animal protein for three primary reasons," said Mark Schiller, president of North American

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Egg prices continue to fall from record highs

Breaking egg prices have fallen below the cost of production to five-year lows, and egg product prices have tumbled from record highs last summer that resulted from the massive loss of laying hens caused by an outbreak of highly pathogenic avian influenza that was

spreading fast about this time last year.

Breaking stock eggs were under 35c to 40c a dozen in the Central region last week, down 85% from a record high of \$2.35 to \$2.45 a dozen in early August 2015. Liquid, frozen and dried egg product prices, meanwhile, have declined about 65% to 80% from record highs posted between mid-July and early September of last year.

Prices for many egg products were at or near their lows for the year to date in late April 2015, coming down from price increases in March that had been driven by improved export sales and retail orders for eggs ahead of Easter, which was on April 5 that year. The market at the time was dealing with a new law in California requiring larger cages for laying hens that limited supplies, boosted prices and slowed

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Mixology

for all-age, anytime beverages

Alcoholic beverage flavors are showing up in a variety of applications

Interest in artisanal spirits, craft beers and regional wines has consumers craving the flavors of adult beverages in all types of products, including food, served at all times of day. Alcoholic beverage-inspired flavor systems make it possible to enjoy a merlot-flavored smoothie with malted muffin in the morning, a whiskey spice-infused cola with the lunchtime rum-rubbed bacon burger and a mojito-inspired sparkling water with tequila-infused salsa-topped nachos at dinner.

Cocktail-inspired flavors in beverage formulations allow consumers to carefully indulge while they refresh and rehydrate all day long, said Lu Ann Williams, director of innovation, Innova Market Insight, Arnhem, The Netherlands. She provides the example of Calpis Welch's Cocktail Sparkling Chardonnay and Orange Juice, a non-alcoholic beverage recently introduced to the Japanese marketplace.

"Spirit flavors can add complexity to traditional soda flavors," said Sheila Harte, senior manager — beverage development,

Bell Flavors & Fragrances, Northbrook, Ill. "A bourbon whiskey flavor works well with root beer, while adding cognac flavor to an orange soda gives the product sophistication."

Adding alcoholic beverage flavors to everyday drinks is not new, but the depth and layers of flavors going into the non-libations is becoming more complex. The trend is riding the coattails of the mixology movement, which melds culinology with bartending.

For example, Symrise Inc., Teterboro, N.J., developed a line of grilled fruit flavors that deliver the same tastes of freshly grilled fruits often used by mixologists when shaking a fanciful cocktail. One such example is The Smokey Tamarindo developed by Junior Merino, a mixologist based in Riverdale, N.Y. Known as "the liquid chef," Mr. Merino shakes juice from grilled pineapples with tequila, tamarind juice and agave nectar, and serves the cocktail over ice in a pasilla chili- and cinnamon-rimmed glass. Using grilled pineapple flavor along with some heat, citrus and sweet agave juice in ordinary

pineapple juice, it's possible to simulate Mr. Merino's specialty, sans the alcohol.

Tequila flavor takes on a different spin when it's used in margaritas. In non-alcoholic versions, the tequila flavor may be mimicked by combining floral and citrus notes in a salty limeade that includes a slight back-of-the-throat burn. The latter may be achieved using a flavor-sensation system designed to provide the familiar alcohol burn and tingle that somewhat dries the mouth. Such ingredients stimulate mouthfeel enhancers without the alcohol, adding authenticity to the consumption experience.

Mimicking the range of rums and whiskeys may be challenging, as sensory attributes vary by grade and brand, with certain varieties associated with different cocktails. For example, Jack Daniel's Tennessee Whiskey has a mix of caramel, honey, vanilla and wood notes that goes well with apple to make a cider-style beverage. If an Old Fashioned mocktail is on the menu, you would choose a more smoky, nutty and sweet bourbon whiskey flavor.

Rum may contain hints of caramel, molasses, oak and vanilla. When creating a mock pina colada, the sweeter and creamier rum flavors are most important to add to coconut and pineapple juices.

Maggie Harvey, new product development manager, Mizkan America Inc., Mount Prospect, Ill., said, "Pina colada is a popular flavor in dozens of products, from energy drinks to weight-loss beverages."

On the other hand, with an alcohol-free daiquiri, browner rum notes work better with sweet lime. Both formulations should avoid the spice associated with Captain Morgan rum, which better complements berry juices, tea and even coffee.

"Rum and bourbon have always paired well with coffee beverages because they complement the nutty flavors of roasted coffee beans while enhancing coffee's caramel notes," said Dave Sackett, executive director of sales and marketing at Mizkan. But now these flavors are getting some extra kick with the addition of spices or tropical and exotic flavors.

"For teas, we are seeing more

MIXING UP MOCKTAILS

There is a base of consumers who don't drink alcohol. In fact, data suggest nearly one-third of U.S. adults fall into the category.

"Even those of us who do drink will abstain for lots of reasons: you're driving, you're doing business, you have to get up really early to bring your kids to a practice or game in the morning, or maybe you have enjoyed a drink, and now you want to transition before hitting the road," said Bill Gamelli, president and founder, Mocktails Beverages Inc., Wenham, Mass.

Mr. Gamelli and his business partners founded Mocktails Brand Alcohol-Free Cocktails, which may be consumed as is or used as a mixer, because "members of our own families and friends had been struggling for years with the lack of good choices when not 'drinking' in social situations," he said. "For those of us who do enjoy cocktails, we found them to be heavy and syrupy as well

as messy to make and serve. We were looking for something delicious, simple to serve and better for you."

There are four varieties: Karma Suca Cosmopolitan, Scottish Lemonade Whiskey Sour, Sevilla Red Sangria and Vida Loca Margarita.

"With zero alcohol and zero artificial ingredients, our carefully crafted mocktails come

ready to serve with top-shelf taste," Mr. Gamelli said. "And a single serving contains less than 60 calories.

"The sangria blends grape and black cherry with a dash of exotic flavor. Drink it like wine, or add the sliced fruit for that authentic sangria experience.

"Our Scottish Lemonade has splashes of lime and ginger. Shake it up and pour it over ice in a rocks glass. Shake up the cosmopolitan, which is a blend of cranberry, white grapes, a hint of lime and a combination of natural flavors, and pour it in a stemmed glass garnished with a lime." FBI



wine flavors in development," Mr. Sackett added. Sangria is quite popular, as it provides layers of fruit flavors.

Novato, Calif.-based The Republic of Tea now offers what it calls The Sonoma Teas collection, a new concept in an herbal tea blend. The appreciation of Sonoma County's renowned vineyards previously had been limited only to wine enthusiasts, according to the company. With the introduction of the new tea collection, everyone now may enjoy a refreshing beverage that showcases the best qualities and flavors from fine wine.

Free of caffeine, alcohol and calories, while also containing grape skin antioxidants, Sonoma Teas are a better-for-you alternative. The collection showcases three varietals for iced tea, including Sonoma Chardonnay, Sonoma Rosé and Sonoma Cabernet. Similar to wine, each variety imparts unique and identifying characteristics.

Non-alcoholic malted beverages are gaining traction among consumers who crave a cold beer but want to make a more positive beverage choice. That desirable beer flavor also is making its way into other beverages such as ready-to-drink coffee.

Cuvée Coffee, Spicewood, Texas, developed Black and Blue nitrogen-infused beer-flavored coffee in on-the-go single-serve cans. Black and Blue coffee is treated with nitrogen and carbon dioxide under high pressure, which gives the traditional cold-brew coffee a creative beer-inspired twist as the unique treatment provides a rich and creamy body, with a thick head similar to a stout. As to the flavor, the tiny bubbles in the coffee provide bitter-sweet chocolate notes, making the taste less acidic than large-batch cold brews.

A year ago, Seattle-based Starbucks tested a Dark Barrel Latte. The iced beverage was

espresso blended with a chocolate stout (roasted malt flavor) flavored sauce and topped with whipped cream and a dark caramel drizzle.

The beer industry has expanded to include many more industries, including all types of non-alcoholic beverages, said Ms. Harte. In response, the company recently introduced a line of beer flavors, each with a unique flavor profile.

"Our IPA flavor has a strong herbal note accented with a medium malty note, while our stout flavor is mildly hoppy and has silky, velvety notes of cocoa with a bold roasted flavor," Ms. Harte said. "We have a Hefeweizen (wheat beer) flavor with unique notes of banana, cloves and apple and distinctive hints of sweet and spicy."

The sensory notes invite some unexpected applications, such as juices and smoothies. The same is true for Bell's hard cider flavor, which has a sweet-tart profile that finishes fresh and crisp.

Alcohol flavor development

Achieving that perfect blend of flavors to simulate an alcoholic drink takes technique, as many of the flavors come from the alcohol component ... the spirit, the wine or the brewed beer. There are some flavors that simply cannot be present at the same levels without the alcohol, said Ms. Harvey.

"Because many of the signature flavor components are found in higher alcohols or are only miscible in actual alcoholic spirits, non-alcoholic products have to be formulated carefully so that they don't lose authenticity of flavor," Ms. Harvey said.

Understanding how those flavors develop, as well as how they may vary based on starting material and manufacturing process, assists chemists with the development of flavors. To start, it is important to understand the two primary categories of alcoholic beverages. Those described as distilled include spirits and liqueurs, while beers and wines are referred to as fermented. Spirit and liqueur manufacturing starts with fermentation and is followed by distillation, the process of separating and

concentrating the various components by selective evaporation and condensation.

Fermentation involves the use of live and active microorganisms, most notably bacteria and yeast, to convert carbohydrates, mainly sugar, into alcohol. Carbohydrate source and quality, and microorganism selection impact flavor and volatile development, as does every step in the manufacturing process, which, for some alcoholic beverages, includes aging and ripening prior to packaging. This is how there are so many brands and varietals of alcoholic beverages in the marketplace.

In theory, a non-alcoholic packaged beverage may be crafted using the real alcohol base that it's trying to mimic. That's because the manufacturing process to produce a packaged beverage involves heat, which burns off the alcohol. But with the alcohol goes many flavors and aromas.

"The volatility of the alcohol can be tricky for manufacturers to work with, and they often have to compensate in formulations for some of the alcohol's flavor components," Ms. Harvey said.

This is where flavoring ingredients such as reductions come into play. The highly concentrated ingredients are made from real alcohol and are prepared using heat under vacuum, whereby the alcohol and most of the water gets cooked off but the volatiles remain. The reduction has an extremely concentrated flavor profile, rendering it a very cost-effective ingredient. Because reductions are made from real alcohol, it is possible to make claims such as "made with real Kentucky whiskey."

In addition to reductions, flavor extracts are another option. Natural flavors are obtained through commercial fermentation using many of the same components found in the specific liquor. The flavors come in liquid and dry form, and run the gamut of beer to spirits to wine.

There is also financial incentive to using flavoring ingredients rather than real alcohol. That's because the Bureau of Alcohol, Tobacco, Firearms and Explosives requires special

taxes to be paid on alcohol.

"If you bring real alcohol into a manufacturing facility, you have to pay taxes on it just like you would if you bought it at a packaged store," said Christopher Warsow, corporate executive chef at Bell.

Spirit flavors also are often used in alcohol-containing beverages for both cost-savings and consistent quality.

"Spirit flavors can make an ordinary spirit beverage taste like a premier one," Ms. Harte said. "For example, in order to meet a specific price point, a ready-to-drink margarita beverage maker may have to use a modestly priced tequila. In order to achieve a top-shelf tequila taste, they add tequila flavor."

"For distribution and tax reasons, many alcoholic beverage makers use malt base as their source of alcohol," Ms. Harte said. "Spirits flavors are really needed in this case to produce cocktails without the actual spirits. Spirit flavors can make a mojito-flavored



Pina colada is a popular flavor in dozens of products, from energy drinks to weight-loss beverages.

cocktail with authentic rum notes all while only using a malt source for alcohol content. A common challenge for beverage technologists is to mask the malt base. Using strong spirit flavors that overcome the malt notes is key."

Bill Smith, director of global beverage innovation and research and development, Sensient Flavors, Hoffman Estates, Ill., agreed that flavoring

systems may help deliver the anticipated profile to meet the consumers' expectations.

"Oftentimes malt- or wine-derived beverage bases are used in the preparation of ready-to-drink cocktails," he said. "Even if a small amount of the characterizing spirit is used, it may not contribute enough impact to the finished beverage and a flavor should be used to boost the impact."

"Depending on the carrier system, some flavorings can be a challenge to incorporate, especially in juice- and protein-containing beverages."

For example, an ethanol-based flavor can denature the proteins or precipitate out the juice solids if used at high levels.

"Processing and packaging also play a key role in the stability of beverage flavors," he said. "A hot-fill process can negatively impact both taste and strength of flavor. Packaging can present challenges to stability over time. Plastic bottles can allow significant exposure to oxygen compared to a glass bottle or can. A clear container can allow more exposure to sunlight or ultraviolet rays, which can negatively impact taste." ^{FN}

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