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Bakers need to be cautious with Cannabis

Consider hemp's flavor and CBD's legal status

“While there continues to be momentum from a federal standpoint toward the path of legalization, CBD integration into food and beverage currently isn't one-size fits all.”

— Nicole Zangara, Batory Foods

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The *Cannabis sativa* category could be divided into three potential growth opportunities for the baking industry. Each of the three comes with its own challenges.

Federal regulations pose no problems for hemp extracts without cannabinoids (CBD), but off-tastes may need addressing. Inaction from the US Food and Drug Administration is holding up CBD sales growth. More states are legalizing marijuana to differing degrees, and more young people are partaking of the drug, which is still illegal under the federal government's Controlled Substances Act.

HEMP'S EARTHY, NUTTY FLAVOR

Hemp and marijuana both contain CBD, and both are *Cannabis sativa*. Hemp plants must contain less than 0.3% delta-9-tetrahydrocannabinol (THC), the psychoactive compound in marijuana, or they are considered marijuana, according to the latest farm bill, also known as the Agriculture Improvement Act of 2018, which legalized hemp farming in the United States.

Hemp contains protein and other nutrients like magnesium, fiber, zinc and iron, said chef Richard Charpentier of Flour

Innovation, LLC, Morgantown, Pa., adding the plant also is sustainable as it grows well without the use of fertilizers. Hemp has an earthy, nutty flavor that may not be desired in some applications.

“In order to resolve the issues, formulators can limit the amount of hemp to less than 5% of the recipes, and hemp pairs well with spices and brown sugar to bring new notes,” Mr. Charpentier said.

Flour Innovation offers Hemp N' Seeds in flour mixes available at retail in bread varieties such as keto, premium artisan, rustic French and German farmer rye. Besides hemp, the mixes include other ingredients like barley flour, sunflower seeds and flax seeds. A multigrain sourdough created by Mr. Charpentier won a bronze award at the Tiptree World Bread Awards USA held during the International Baking Industry Exposition in September in Las Vegas.

Hemp N' Seeds now has entered the wholesale category, too.

“We officially launched at the IBIE, and we are now a supplier of bakery blends for industrial and semi-industrial bakeries,” Mr. Charpentier said. “We work directly with blenders and offer 25- and 50-lb bags.”

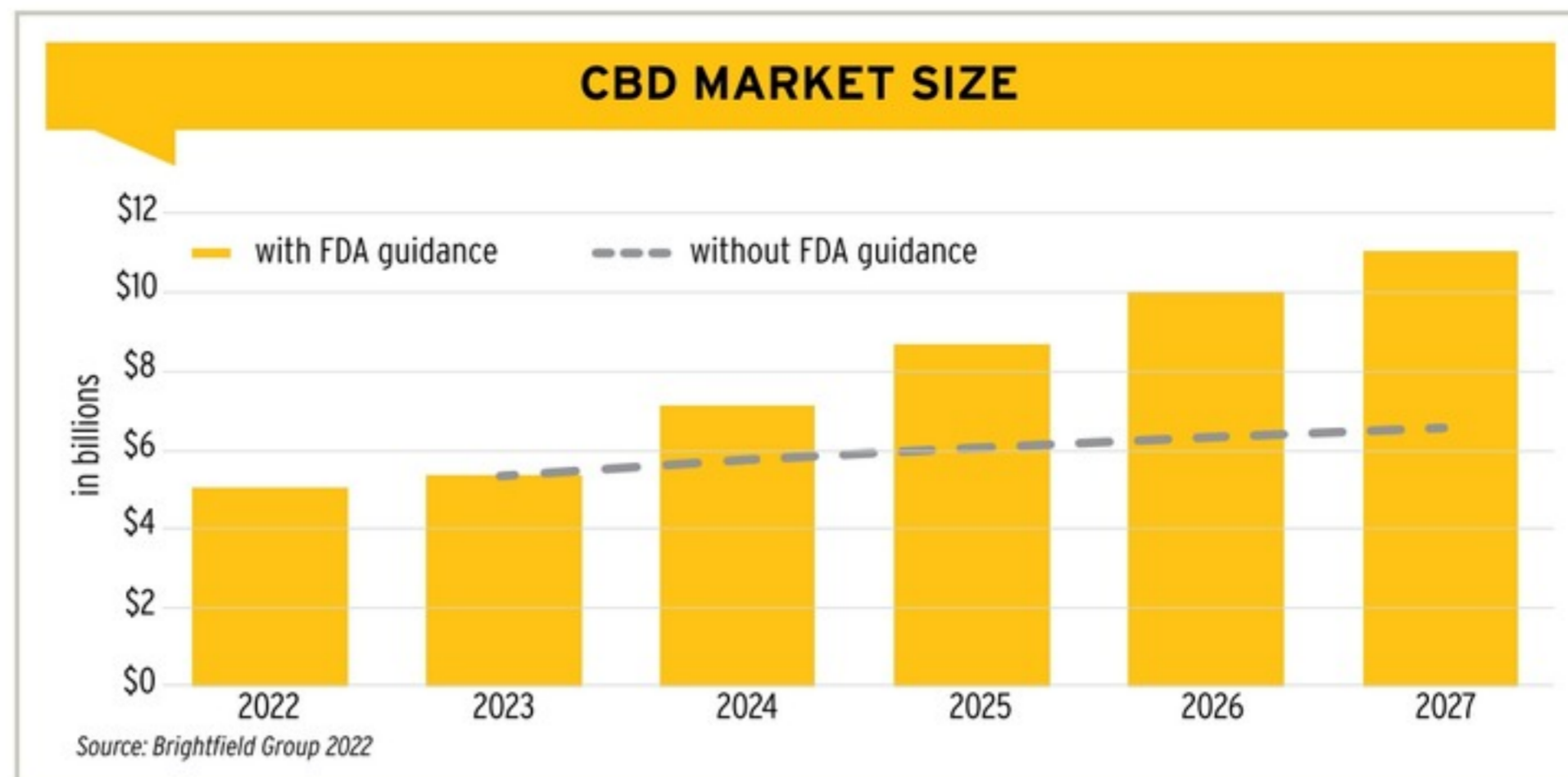
Improving digestion and reducing food

waste are two benefits of Brightseed Bio 01 launched Oct. 26 by Brightseed, San Francisco. A dietary hemp fiber, Brightseed Bio 01 supports gut health when used in foods and beverages, according to the company. Sourced from upcycled hemp hulls, Brightseed Bio 01 contains N-trans-caffeoyl tyramine (NCT) and N-trans-feruloyl tyramine (NFT), which are two bioactive compounds that have been shown in preclinical studies to support gut barrier integrity, according to the company.

Forager, Brightseed's artificial intelligence (AI) platform, identified the gut health benefits. Doug Bolster, PhD, senior director, translational and clinical research at Brightseed, presented details on the preclinical studies at the International Society for Nutraceuticals and Functional Foods annual conference held Oct. 2-5 in Istanbul.

Potential applications include cereal, granola, nutrition bars and functional beverages. Brightseed and Puris, a Minneapolis-based supplier of plant-based proteins, starches and grains, jointly developed Puris BioCrisp+, a protein crisp ingredient.

"We're thrilled to launch Brightseed Bio 01, the first of many bioactive ingredients in Brightseed's pipeline that will enable companies to innovate for health and bring science-backed solutions forward for consumers," said Sofia Elizondo, co-founder and chief operating officer for Brightseed. "More than ever, people are turning to the food and beverage



industry for proactive and personalized health solutions. Brightseed Bio 01 is the latest demonstration of how Forager AI is furthering our understanding of how bioactives found in nature are powerful catalysts to improve human health span."

Brightseed will have a booth at SupplySide West Nov. 2-4 in Las Vegas.

BE CAUTIOUS LEGALLY WITH CBD

Once the farm bill passed in 2018, acreage numbers for hemp in the United States soared. The number of acres of hemp licensed across 34 states totaled 511,442 in 2019, more than quadruple the number of acres licensed the previous year, according to Vote Hemp, a hemp advocacy organization.

The food industry then waited for the FDA to make a ruling on CBD extracts. Industry is still waiting. The FDA does not allow CBD in foods, beverages and dietary

supplements because it is in Epidiolex, an FDA-approved drug. The FDA in 2019 began sending warning letters to companies for illegally selling products containing CBD in ways that violate the Federal Food, Drug, and Cosmetic Act.

"CBD is so interesting," said Steven Schain, senior counsel for the Schain Law Firm, Philadelphia, in a presentation at IBIE. "It has caught the public's attention and the ire of regulators."

The Brightfield Group, Chicago, in a 2022 midyear report expected the US hemp-derived CBD market to reach \$5 billion in retail sales in 2022. If federal regulation were to be implemented by 2024, sales could reach \$11 billion by 2027. Without federal regulation, sales still could go over \$6 billion. Compound annual growth rates with federal regulation could be over 40% in mass merchandisers, club stores and grocery stores. Without regulation, the CAGR could be under 10%.

"Until FDA takes a stand on this, you're going to be living in a little bit of the wild west," said Jerry Smiley, founder and partner in Strategic Growth Partners, during a presentation.

Batory Foods, Rosemont, Ill., now distributes CBD ingredients after entering a partnership with KND Labs, Lakewood, Colo., which produces hemp-derived CBD, as well as other cannabinoids such as cannabigerol (CBG). KND Labs has facilities in Lakewood and Arvada, Colo.

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It might be best to add cannabinoids (CBD) during the formulation's oil phase.

one-size fits all,” said Nicole Zangara, technical business development manager at Batory Foods. “Ultimately, it is up to the customer to decide what avenue and path they take. Some states have individual laws or guidance allowing CBD use in foods and beverages. Batory suggests consulting with state regulations and focusing on where customers can currently play whether it be on a regional or state-by-state basis.

“Most importantly, we stress that you don’t want to be late to the party. Doing a soft launch or having a formulation ready to go with CBD allows the customer to be buttoned up and ready to launch nationally when things do change from a federal perspective.”

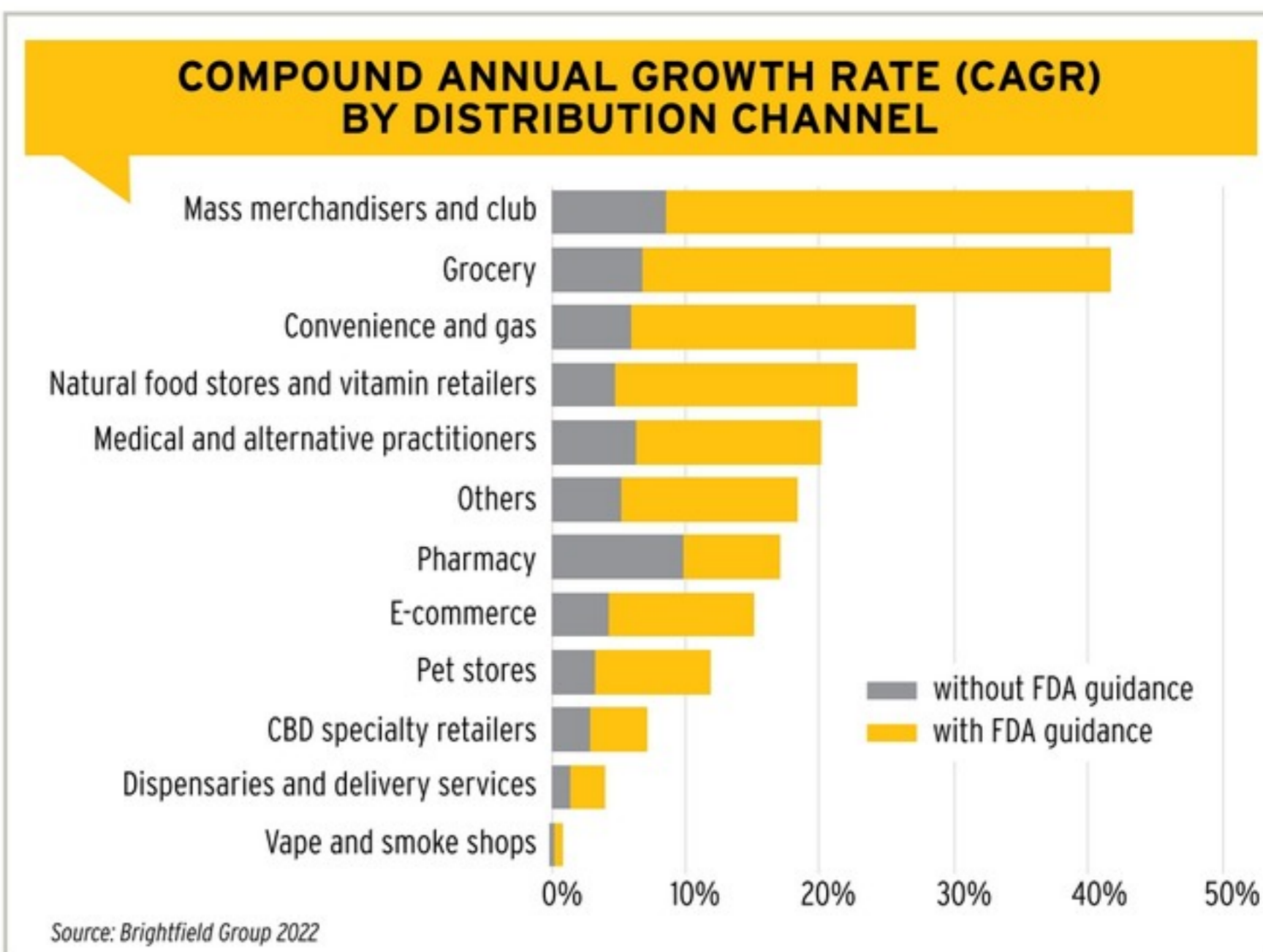
Potential applications for KND Labs CBD in baked foods are bread, pasta, cereal, oatmeal, pastries, cookies, chips, popcorn and crackers.

“The easiest way to formulate with KND Labs cannabinoids is to add them to the formulation’s oil phase,” Ms. Zangara said. “In its main form, hemp-derived cannabinoids are oil-based whether that is an oil or crystalline powder (distillate, isolate). Water-miscible technology is also available as an additional option for formulation needs.”

Since high temperatures may compromise or degrade CBD compounds, it should be baked at a lower temperature, perhaps even a no-heat option. CBD’s boiling point is in the range of 325° F to 350° F, she said.

“Thinking outside the box and adding CBD to other components in your product is also a great way to add CBD without the worry of degradation or heat sensitivity,” Ms. Zangara said. “An example of this would be infusing CBD into an icing for a cookie or cake to avoid excessive heat.”

CBD isolate has little aroma or flavor since it contains almost no other compounds from the original hemp plant.



“A CBD distillate will contain terpenes, which may have some bitter or off-notes,” Ms. Zangara said. “Depending on the formulation and targeted consumer, some may find these notes desirable. A broad-spectrum distillate containing terpenes may have additional desired health outcomes resulting from the entourage effect.”

If taste issues crop up, masking agents or taste modifiers may be used, she said, adding Batory Foods offers masked, unmasked and low-terpene CBD options.

MARKETS FOR MARIJUANA

Thirty-eight states have a legalized marijuana program, Mr. Schain said in his IBIE presentation. States generally first approve a medical program and then may progress to an adult-use program.

“Globally, it’s happening very fast,” he said. “A year in cannabis is like seven years in every other industry.”

BDSA, Louisville, Colo., projects annual global cannabis sales to have a CAGR of nearly 13%, increasing to \$57 billion in 2026 from \$30 billion in 2021. In the United States, BDSA expects sales to grow to \$42 billion from \$25 billion.

“The ‘hockey stick’ trend of sales growth seen in the early years of legal cannabis has passed, and economic and regulatory headwinds are exerting pressure on legal cannabis markets,” said Roy Bingham, chief executive officer of BDSA. “Still, our updated forecast predicts

that steady gains in developing US markets will continue to drive single-digit annual growth in total US legal sales in 2022, with continued growth prospects out to 2026.”

Among consumers of the ages 19 to 30 in 2021, 29% said they had used marijuana in the past month, which compared with 21% in 2016 and 17% in 2011, according to a study conducted by scientists at the University of

Michigan’s Institute for Social Research and funded by the National Institutes of Health. Data were collected online in April 2021. Those of the ages 19 to 30 reporting daily marijuana use increased to 11%, up from 8% in 2016 and 6% in 2011.

Mr. Schain, in contrast, said consumers over age 55 are the fastest-growing demographic for marijuana use. He suggested companies target a market niche when promoting baked foods with marijuana.

“Just putting cannabis in your macarons is not necessarily going to sell your macarons,” Mr. Schain said.

Sweet baked foods present an opportunity for marijuana inclusion, said June Smiley, the daughter of Mr. Smiley and an associate with Strategic Growth Partners, in the IBIE presentation. Sweet baked foods already may be seen as decadent. Consumers, already familiar with “pot” brownies, could experience indulgence while eating baked foods and then experience other effects later on due to the THC. Potential applications could be crispy rice bars, cookies and even workout bars.

Ms. Smiley suggested companies enter the market early and trademark brand names.

Mr. Smiley said state-by-state laws complicate the cannabis category.

“The federal government needs to take a stand on cannabis, whatever that happens to be,” he said. MBN

— Jeff Gelski