



Breaking News on Food & Beverage Development - North America

INTERVIEW WITH DAN BELLIVEAU, CREATOR OF COFFEE FLOUR AND CO-FOUNDER OF CF GLOBAL

Coffee flour inventor: We're finally beyond the stage where people just call us crazy'

By Maggie Hennessy, 01-May-2014

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A longtime executive at the likes of Starbucks, Frito-Lay and General Motors used his experience in improving supply chain efficiency to create a groundbreaking food ingredient traditionally left to rot as a byproduct of the roughly 17 billion pounds of coffee beans harvested around the world each year.

Dan Belliveau came up with the idea of coffee flour in spring of 2012, after six years as head of technical services at Starbucks and 12 years of owning a coffee and wine supply chain firm had exposed him to the entire coffee supply chain. *"I was doing more and more work on the wet milling process in the countries of origin and saw how few of them thought about the byproduct,"* Belliveau told FoodNavigator-USA. *"Then it was a matter of someone asking me and within a few seconds, I thought, 'what if we made a food out of coffee cherries?' Suddenly, my life changed."*

If the guys controlling a quarter of the world's coffee haven't heard of it, maybe we have something here

Belliveau floated the idea to an industry confidant whose family owns one of the world's largest coffee trading companies. *"He'd never heard of it. So I talked to another friend whose family had been in the coffee business for 60 years. He said, 'You're crazy.' So I thought to myself, if I'm pitching two people who collectively control 25% of the world's coffee and they haven't heard of it, maybe we have something here."*

He trademarked the process of capturing and converting coffee cherries (also called pulp) into a nutrient-dense, gluten-free flour and founded CF Global Holdings in Bellevue, WA, to commercialize the product, enlisting intellectual property experts Intellectual Ventures to advise on IP strategy and standardizing the process, as well as provide financial and technical support for testing and product development.

Built into CF Global's business model is the two-pronged goal of adding revenue sources for farmers, pickers and mills while reducing the environmental impact of green coffee production. In a typical wet mill, once the green coffee bean is separated from the cherry, the bean is fermented and dried for processing, while the pulp is typically dumped into a field, where it starts to decay very quickly.

"At some of the larger wet mills, you can see acres and acres of pulp five feet deep decaying," Belliveau said. "The growers usually don't deal with it for three or four months because they're focused on the harvest. Some bigger operations started to look at feeding it to worms for higher-end fertilizer, but many have literally acres of land filled with rotting pulp."



The key to a quality, safe product: treat it nicely and dry it quickly

That's where CF Global comes in. As soon as the bean and cherry are separated, it captures, pits and treats the cherries using its patent-pending process, before drying them at low temperatures until they reach about 10% moisture, a level sufficient to inhibit microbe and mold growth such that they're shelf stable for up to a year and a half, according to

Belliveau. *"That's the key behind making this a quality and safe product: to treat it nicely and then dry it quickly."*

The dried cherries are then ready to be milled, though the fruit's extraordinarily high fiber content (up to 55%) requires a multistep milling process to achieve flour particle consistency.

While the process does require some additional manpower and equipment, part of CF Global's goal is not to be a "shock" to an existing milling operation, so it established supply agreements with Ecom Agroindustrial Inc. and Mercon Coffee Group, which expand operations and employ additional staff to process the cherries, thus requiring little additional build out or effort by the farm. *"The operators pay the farm through cost of goods, which keeps costs down and drives up local employment,"* Belliveau noted.

The firm is currently working with four mills: in Mexico, Guatemala, Nicaragua and Vietnam. Its first harvest, in 2012-13, yielded relatively small volumes of coffee flour. *"We were working covertly with friendly mills who didn't understand what we were doing,"* Belliveau said. *"It took probably six months to get over people calling us crazy before we finally got in the lab to start testing the flour."*

It took six months to get over people calling us crazy and finally get in the lab

Contrary to the seemingly obvious, coffee flour doesn't taste like coffee. Its flavor profile is much more akin to dried fruit. Due to its high sugar and fiber content, roasting it tends to result in abrasive burnt sugar flavors. *"The low-temp drying process is not just to prevent damage to the ingredient, it also brings out this wonderful dried plum or cherry flavor profile coupled with tobacco leaf notes,"* Belliveau said.

Aside from being gluten-free and high in fiber (five times more than whole wheat flour, claims CF Global), coffee flour has twice the potassium of a banana on a per-ounce basis and three times the protein per gram than fresh kale. It does contain caffeine, though Belliveau said the amount is considerably lower than that of a cup of brewed coffee. The firm is also testing a decaf version.

Because it's a premium ingredient with a brownish hue and something of an acquired taste, Belliveau noted that replacing 20 to 25% of flour with coffee flour yields great results in

baked products ranging from pan bread to muffins, to brownies, naan and tortillas. Unlike other gluten-free flours, coffee flour enables some rise in dough because of its high fiber content. *"The fiber takes over some of the gluten role because it absorbs a lot more moisture and allows the product to rise,"* he said.



Brownies made with coffee flour

Aside from baked products, the ingredient has shown promise in blended chocolate and fish sauce inclusions, as well as beverages, where it's all about texture. *"We can grind it down to icing sugar consistency for beverages. We've gone up to 30% of a protein drink and people are fine with it. It does impart flavor, and most protein drinks out there aren't going for flavor,"* Belliveau noted.

Interestingly, the firm has also used coffee flour as a partial substitute for coffee in cold coffee beverages, finding that the flour's antioxidants help remove coffee's astringency when the two are brewed together. *"It makes a nice cold coffee beverage to the point where even tea drinkers actually like it,"* he said.

On track to harvest upward of 3 mn pounds next year, more needed to make a real impact

CF Global is nearing the end of the 2013-14 harvest, with an anticipated yield of 350,000 to 400,000-pounds, which will be available for commercial testing before the product comes to market in 2015. CF Global is fielding requests from such manufacturers as large commercial players in bread and baked products, blended flour companies and even chocolatiers.

"We're ready to do 2.5-3 mn pounds by the next harvest, and are hopefully on our way to a few billion pounds," Belliveau said, adding that through CF Global's network, it has access to multiple billions of pounds of pulp. But that's how much the company needs to make a difference.

"It's a good story to say we've helped a couple mills, but that won't impact the farmers, mills or the environment on a large scale," he said. *"That's why we are approaching everybody: creative chefs, early adopters, small and mid-size companies looking to lead the pack, up to larger commercial folks looking to move volumes. That's what it will take to make this a success and to change the coffee industry, the food and beverage industry and the planet."*

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