

Golden ticket: Researchers examine what consumers desire in chocolate products

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Participants in a study on what premium chocolate consumers desire in chocolate products tasted five different chocolate bars: mainstream (Hershey's Milk Chocolate Bar), premium (a Lindt Cocoa Dark Chocolate Bar, a Green and Black's Organic Dark Chocolate Bar, and an Endangered Species Dark Chocolate with Sea Salt and Almonds); and craft (Dandelion Chocolate 70% Ambanja, Madagascar). Credit: Allison Brown, Penn State

Gold foil, ornate labels and an intriguing backstory are product

characteristics highly desired by premium chocolate consumers, according to research conducted by food scientists in Penn State's College of Agricultural Sciences.

The study is one of the first to thoroughly research what American premium chocolate consumers find to be desirable attributes in their chocolate bars. An additional focus was on these consumers' perceptions of craft chocolate, which is made from scratch—bean to bar—by small companies using fine flavor cocoa beans.

Much like craft beer and specialty coffee, craft chocolate is gaining popularity among consumers who are seeking a unique experience, noted lead researcher Allison Brown, food science doctoral candidate in the college's International Agriculture and Development dual-title degree program.

She added that study outcomes, which were published in the journal *PLOS ONE*, will aid craft chocolate companies when making decisions about [product development](#) and marketing.

"The U.S. craft chocolate market is estimated to be worth \$100 million and growing," Brown said. "However, many companies are small startups with few employees. They do not have marketing teams to guide their brand strategies. Our findings will help them make decisions that could have a large impact on their businesses."

Brown—joined by Helene Hopfer, assistant professor of food science, and Alyssa Bakke, sensory scientist in the Sensory Evaluation Center at Penn State—conducted the mixed-method study, which involved a "projective mapping" activity and focus groups.

Projective mapping, Brown explained, is a technique in which consumers group products on a sheet of paper based upon similarities

and differences in the products. They also may add words to explain their groupings.

For this study, participants mapped 47 different chocolate product stickers on a piece of paper and brought these maps to the focus groups, where they discussed their reasons for putting the chocolates into categories they named 'artisan,' 'Halloween candy' or 'special occasion,' among others.

In the second half of the focus groups, participants tasted five chocolate bars in three categories: mainstream (Hershey's Milk Chocolate Bar), premium (a Lindt Cocoa Dark Chocolate Bar, a Green and Black's Organic Dark Chocolate Bar, and an Endangered Species Dark Chocolate with Sea Salt and Almonds); and craft (Dandelion Chocolate 70% Ambanja, Madagascar).



Allison Brown, food science doctoral candidate in Penn State's College of Agricultural Sciences, conducted research on what American premium chocolate consumers find to be desirable attributes in their chocolate bars. Here, she uses the "scissor-and-sort" technique to analyze themes in her focus groups. Credit: Jennifer Goza, Penn State

They gave their opinions on flavor, packaging, sustainability labels and other aspects that they found to be appealing and unappealing. These discussions were coded to determine themes, which fell into three main categories of attributes: search, reflected by segmentation, price, availability and packaging; credence, or the degree to which the consumer trusted the product; and experience, such as feeling joy when

consuming the chocolate or the use of chocolate as a gift.

Overall, participants responded favorably to every sample because, as Brown pointed out, "It's hard to make chocolate undesirable." However, they focused more on extrinsic cues, such as packaging, rather than intrinsic cues, such as flavor, to judge product quality.

For example, almost all consumers found the craft chocolate sample to be novel and exciting, likening it to coffee and wine in terms of flavor and packaging elements. They were wowed by the product's intricate label design and thick gold foil, with one consumer saying it was "like getting a golden ticket from Willy Wonka."

Consumers also associated high-quality chocolate with the presence of the percentage of cocoa on the label and additional ingredients such as sea salt, almonds or fruit.

Products with higher price tags—and those available only at specialty stores or online—also were deemed to be top notch. "These are more sophisticated, so my brain just thinks they must taste better, so they must be high quality," said a participant. "Also, they're more expensive."

Sustainability labels, such as 'Organic' and 'Fair Trade,' piqued some participants' interest, while others distrusted their presence on the chocolate bar. These attitudes were reflected in participants' willingness to pay for products with certifications—some participants indicated they would spend more for these products, while others would not pay more for chocolate with sustainability labels.

Meaning was another selling point, with the consumers placing a higher value on [chocolate bars](#) made by companies that had an interesting backstory, supported a cause or featured a person's name. For example, the Endangered Species bar was a hit because its label indicates that

proceeds support wildlife conservation. "Participants viewed it as a guilt-free indulgence," Brown said.

Consumers cited positive childhood experiences as the origin of many of the attributes they look for in chocolate products. Chocolate flavors or packaging reminiscent of holidays, campfires or gift giving were highly sought after.

The findings clearly outline how craft chocolates are perceived differently from premium and mainstream chocolates, noted Hopfer.

"Consumers picked up on the exclusive and specialty nature of these products," she said. "The findings highlight the importance of a story behind the product and show that [consumers](#) derive a purpose and joy from chocolate. We also determined the importance of availability, price and packaging as proxies for perceived [chocolate](#) quality."

More information: Allison L. Brown et al, Understanding American premium chocolate consumer perception of craft chocolate and desirable product attributes using focus groups and projective mapping, *PLOS ONE* (2020). [DOI: 10.1371/journal.pone.0240177](https://doi.org/10.1371/journal.pone.0240177)

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