



# Smart Sips.

Brewing Benefits for  
Hard Seltzers.



# Find Untapped Potential

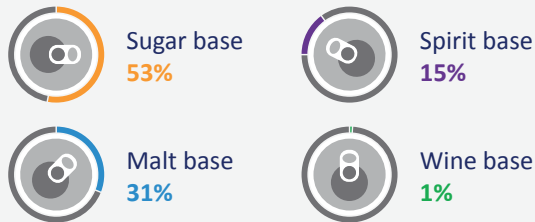
As new brands emerge in the hard seltzer category every day, sugar brew has not only created waves in alcohol, but it's also forever changed the industry, making it the fastest growing—and only—segment to exhibit continuous growth during the global pandemic.

## FUTURE GROWTH TRENDS<sup>1</sup>:

**NA Total RTD Alcohol: \$14.4B**  
15.6% CAGR 2025

**Sugar-base RTD Alcohol: \$7.6B**  
20.5% CAGR 2025

## MARKET SHARE BY BASE TYPE:



These new-age RTDs fill the gap for a solution, managing to keep contemporary consumers' health-conscious goals at the forefront of alcohol innovation. Pairing low calorie and low sugar attributes in a gluten-free, refreshing and highly-sessionable beverage during the flavored sparkling water boom has led hard seltzers to become adapted into homes and businesses across the globe.



## CONSUMER PROFILE<sup>2</sup>

While the hard seltzer market is in a period of infancy, these beverages continue to grow exponentially and are most likely to be consumed informally as a better-for-you option.

### GENERATION

**60%** Millennial  
**33%** Gen X  
**7%** Other

### OCCASION

**69%** Weekend  
**79%** Socially  
**86%** At Home

### ADOPTERS

**25%** Early Adopters  
**15%** Recent Adopters

### MOOD BENEFIT

**55%** Relax/Unwind  
**46%** Have Fun

### LOYALISTS

**90%** Brand Loyalists  
**46%** Willingness to Try Other Brands

By 2025, sugar-based RTDs are forecasted to rise to **\$9 BILLION**, a growth rate of **20.5%**<sup>1</sup>



# Beyond Consumer Demand

Not only does the emersion of hard seltzers answer untapped consumer demands, but there are also significant business incentives for sugar brewing. Because hard seltzers brew like beer, they're taxed like beer—at a much lower rate than distilled spirits. This proves to be a huge advantage for companies seeking to increase revenue while getting ahead in a competitive marketplace.

Now, hard seltzers are facing saturation as new formulations and brands enter to gain a taste of the impressive returns. Because hard seltzers are not distilled, they do not always provide the same clean taste as spirits do, inciting a demand for perfecting the taste and overall sensory experience in a finished product.

**As consumers hunt for the best performing flavors—and brands seek the most optimized production and supply—ADM provides an edge in an effervescent market.**

## Solution-Oriented Experts

ADM's extensive history as a leader in the ethanol businesses since the Oil Crisis of the 1970s and beverage grade alcohol experience has armed us to tackle fermentation challenges with future-forward innovation.

### How can ADM help you achieve superior alcohol fermentation and appeal to the demands of the modern consumer?

As a global supplier of sweeteners and starches, and a leader in beverage formulation, ADM's extensive capabilities make us experts in the industry by creating efficiencies to enhance quality and yield a higher return on ingredients.

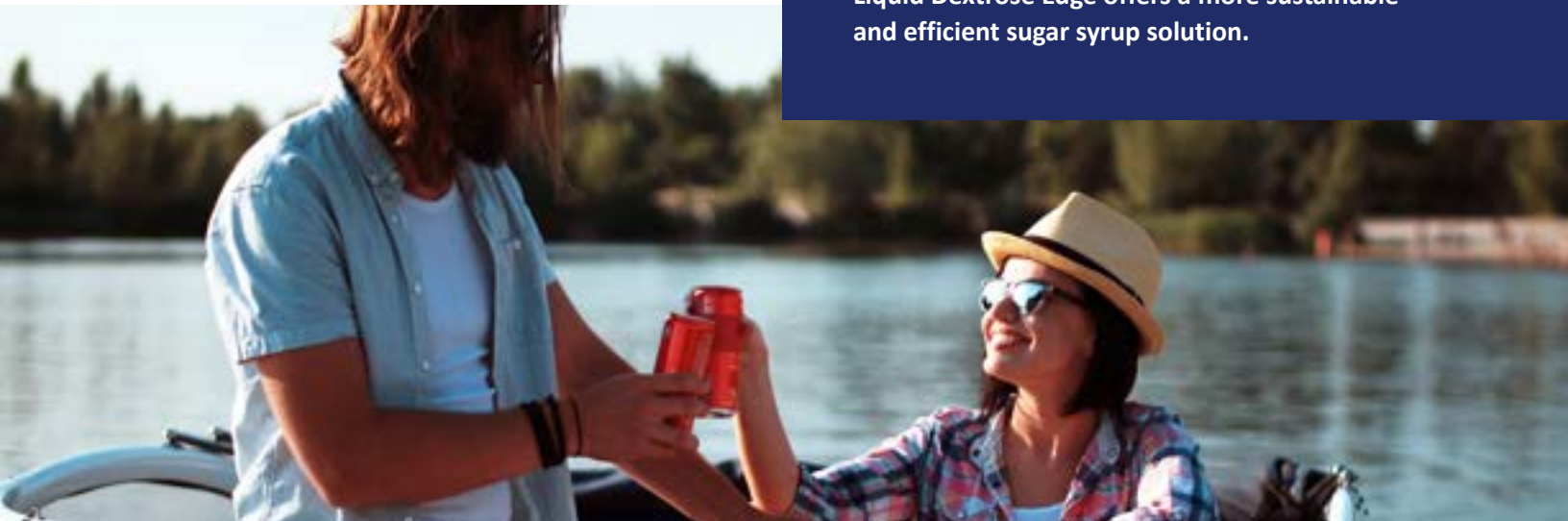


## INTRODUCING LIQUID DEXTROSE EDGE

**The highest purity liquid dextrose in the market achieved enzymatically.**

Dextrose is a simple sugar made from grain chemically identical to glucose or blood sugar and widely used across food, beverage and medical industries. High purity dextrose equivalent (DE) syrups are produced using several unit operations such as industrial chromatography or filtration, requiring higher energy, water usage and increased production costs.

**Liquid Dextrose Edge offers a more sustainable and efficient sugar syrup solution.**



## WHAT MAKES LIQUID DEXTROSE EDGE THE IDEAL FERMENTATION FEEDSTOCK FOR HARD SELTZERS?

From providing a cleaner taste to reaching optimal calorie goals, Liquid Dextrose Edge provides the characteristics consumers will love and presents developers with benefits they won't be able to pass up, such as overall cost savings on hard seltzer production.

### SUCROSE FROM CANE OR BEET

- May require melting
- Requires ion exchange and carbon treatment
- Produces both dextrose and fructose, resulting in unconverted fructose
- Results in longer processing times due to cleaning procedures after each use, reaching RDF much later than Edge

### ADM LIQUID DEXTROSE EDGE<sup>3</sup>

- Same flow and consistency of liquid sucrose
- Higher conversion to fermentation products
- Lower residual sugars and easier to clean post-fermentation
- Significant cost savings and supply benefits

# 8 Key Benefits of Liquid Dextrose Edge



CLEAN TASTE

INCREASED EFFICIENCY

RELIABLE SUPPLY

CONSISTENT

CLEAR COLOR

EASE OF USE

COST SAVINGS

LOWER NUTRITIVE VALUE

## Gain an Innovative Edge, with ADM

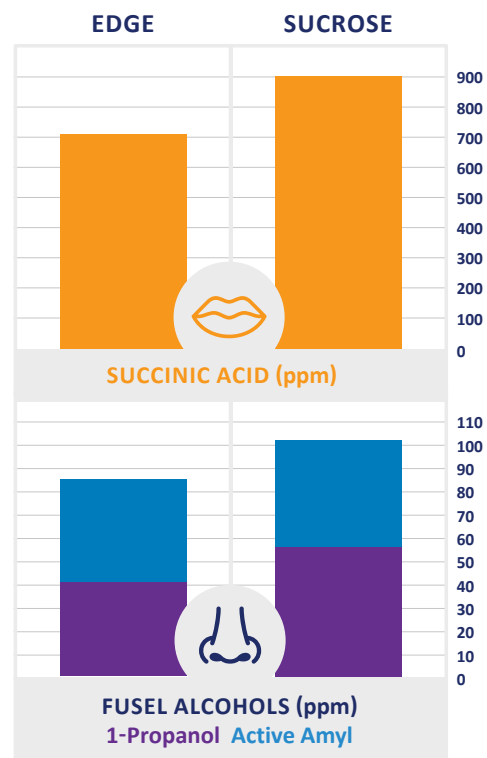
Liquid Dextrose is a preferable solution to sucrose for fermentation in RTD alcohol, optimizing your processes and enhancing the quality of your finished product. It also yields higher return on ingredients when compared to other feedstocks to keep costs low and efficiency up. Each of the eight key benefits falls under one of two categories—functionality or processing.

### CLEAN TASTE

#### Functionality Benefit

Deliver consistently cleaner taste and performance, with less off flavor compounds than sucrose. Liquid Dextrose Edge accomplishes lower succinic acid production and reduced fusel alcohol production, which produce undesirable taste experiences.<sup>3</sup>

Succinic acid is a taste component, naturally found in broccoli, rhubarb and meat extracts and can give beer sour flavors.<sup>4</sup> The odor components include fusel alcohols such as 1-propanol and active amyl alcohol, which are fermentation byproducts that give whiskey its distinct, potent scent and off-notes. Reducing both taste and odor components provide a superior and cleaner finished product.



## CLEAR COLOR

### Functionality Benefit

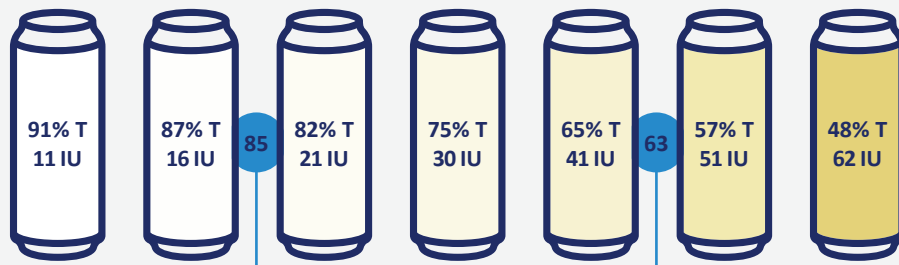
Grain derived sugars and syrups have been used in alcohol production for multi millennia. The higher the dextrose equivalent of a sugar source, the more efficient the fermentation. If you are looking for the clearest end product, you want to start with the clearest feedstock.

Liquid Dextrose Edge can help you produce a colorless finished product, keeping the appearance of your beverage products appealing to consumers. Since Edge is the highest purity DE syrup on the market, your product's color won't be negatively affected. Manufacturing differences in liquid sucrose processes impart a light straw-colored hue on the ICUMSA\* color scale.

\*The International Commission for Uniform Methods of Sugar Analysis

## Depicting Colorimetric Measurements

For illustrative purposes only.



### LIQUID DEXTROSE EDGE<sup>3</sup>

Min. 85% Transmittance  
or Max 17 ICUMSA (IU)  
appearance is "water white"

### LIQUID SUCROSE<sup>5</sup>

Min. 63% Transmittance  
or Max 45 ICUMSA (IU)  
appearance is "light straw"

## CONSISTENT

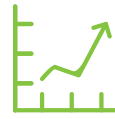
### Functionality Benefit

Liquid Dextrose Edge is a standardized product, produced from ion exchange and carbon treatment with defined purity, conductivity and color.

In addition to reliable taste and color performance, Edge delivers improved micro-stability due to higher workable dry solids—with the same spec achieved each time. For sucrose, made by melt crystallization, variations are expected in color and conductivity based on the melt conditions and the source of sucrose, such as beet sugar vs. cane sugar.

### DRY SOLIDS:

EDGE ~ 71%  
SUCROSE ~ 67%



## INCREASED EFFICIENCY

### Processing Benefit

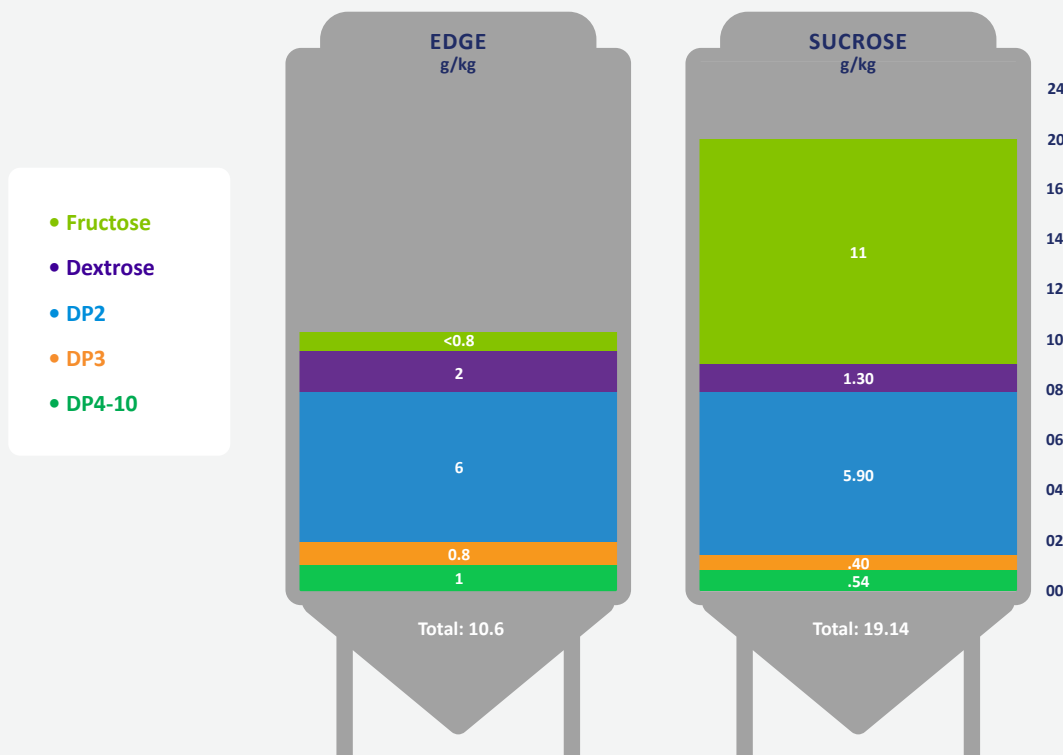
Liquid Dextrose Edge yields more efficient tank processing, delivering a higher real degree of fermentation (RDF) and lower real extract to alcohol ratio (RE/Alcw). Conveniently, it also supports a faster rate of fermentation and results in lower DP1 sugars post-fermentation, which saves you time cleaning between batches.<sup>3</sup>

## Reduce Residual Sugars

Post-fermentation, Liquid Dextrose Edge results in nearly a 50% reduction of residual sugars and higher yeast productivity, accounting for less loss of product.

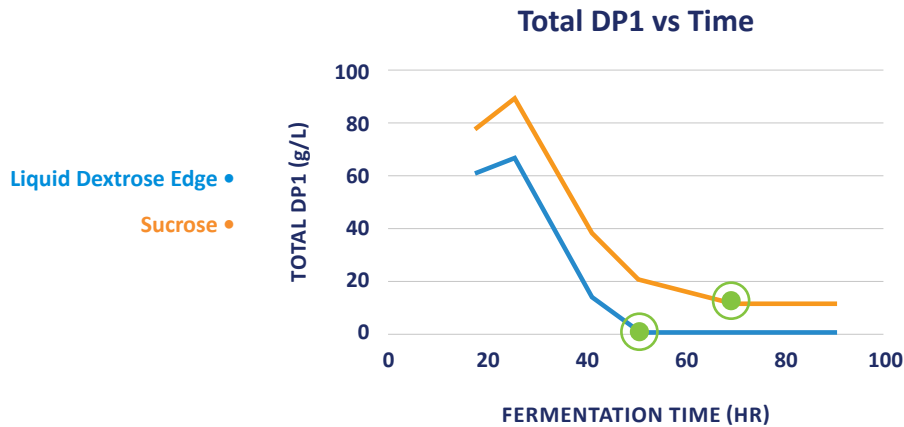
Fermentations using Edge resulted in lower overall unconverted DP1 sugars (fructose and dextrose). The additional fructose that remains in the sucrose fermentation control makes cleanup more difficult and timelier than fermenting with Liquid Dextrose Edge.

### RESIDUAL SUGARS POST-FERMENTATION<sup>3</sup>



# Higher Real Degree of Fermentation

Achieve a faster rate of fermentation with Liquid Dextrose Edge. In fed-batch fermentations targeting high ABV%, Edge permitted faster feed rates while maintaining high attenuation, while sucrose required a slower, more careful feed scheme. As a result, EFT (effective fermentation) is 12 hours quicker for fermentation with Edge vs. sucrose. Faster fermentation rates allow for better asset utilization to run more product through the brewery and limit the need for expensive debottlenecking equipment.



Effective fermentation time (EFT) is **12 HOURS LOWER** for Edge vs. Sucrose<sup>7</sup>

## LOWER NUTRITIVE VALUE

### Functionality Benefit

Liquid Dextrose Edge maintains target ABV% while keeping minimum calories in the final product. There's no need to dilute your product to hit your calorie goals.

The fermentation yields less unconverted sugars, which results in lower calories.

### SUGAR CALORIES POST-FERMENTATION

<b>EDGE</b>	<b>42.4 calories</b>
<b>SUCROSE</b>	<b>76.6 calories</b>

\*1 g of sugar is 4 calories

When ranked, alcohol content (ABV%) is **THE SECOND MOST IMPORTANT ATTRIBUTE** desired by U.S. hard seltzer users after flavor<sup>6</sup>

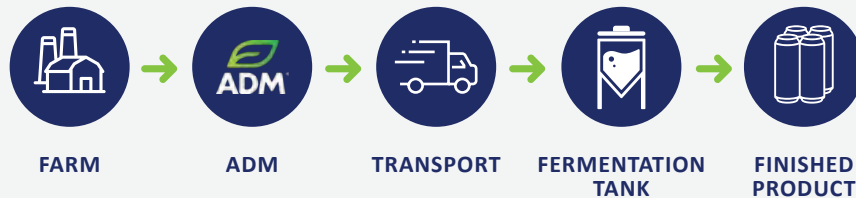


## EASE OF USE

### Processing Benefit

Unlike other available sweetener options, Liquid Dextrose Edge is a convenient drop-in fermentation solution that does not require additional processing. This means you can skip the liquification of sucrose hassle, saving you time, money and energy. No specialized liquification equipment is required and you can also enjoy an easier post-fermentation cleanup process with less fructose residuals.

Since many smaller brands still use crystalline, and dumping bags is hard labor, switching to Edge allows for increased efficiency throughout the process.



## COST SAVINGS

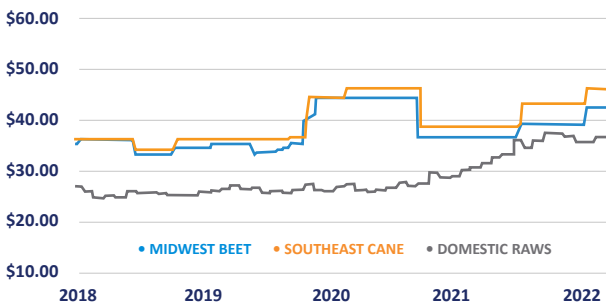
### Processing Benefit

Liquid Dextrose Edge is more cost effective than other fermentation feedstocks—and helps reduce your production costs. There's no need to pay to liquify a granulated product, allowing you to stay competitive in the ever-evolving alcohol segment.

**In fact, you can save at least 20% on raw materials compared to sucrose.**

### U.S. Sugar Prices<sup>8</sup>

Weekly, FOB Refinery (\$/cwt)



USC Prices Q2 2022 through Q3 2022

Beet \$42.00 FOB BB

Cane \$46.00 FOB BB

## RELIABLE SUPPLY

### Processing Benefit

Some things never change—such as the ADM promise. A global leader in logistics, trucking and transportation, we provide the supply you can trust. Our supply benefits include a reliable supply chain that beverage companies have trusted for over 40 years.

We have one of the largest private fleets in the world, with a team focused on prioritizing customer trust and meeting their every transportation and logistics need.



Unlike sucrose, the benefits of Liquid Dextrose Edge **strengthen both the process and functionality of your RTD alcohol formulation in a multitude of ways.** It also yields a higher return on ingredients versus other raw materials, with positive impacts to your bottom-line.



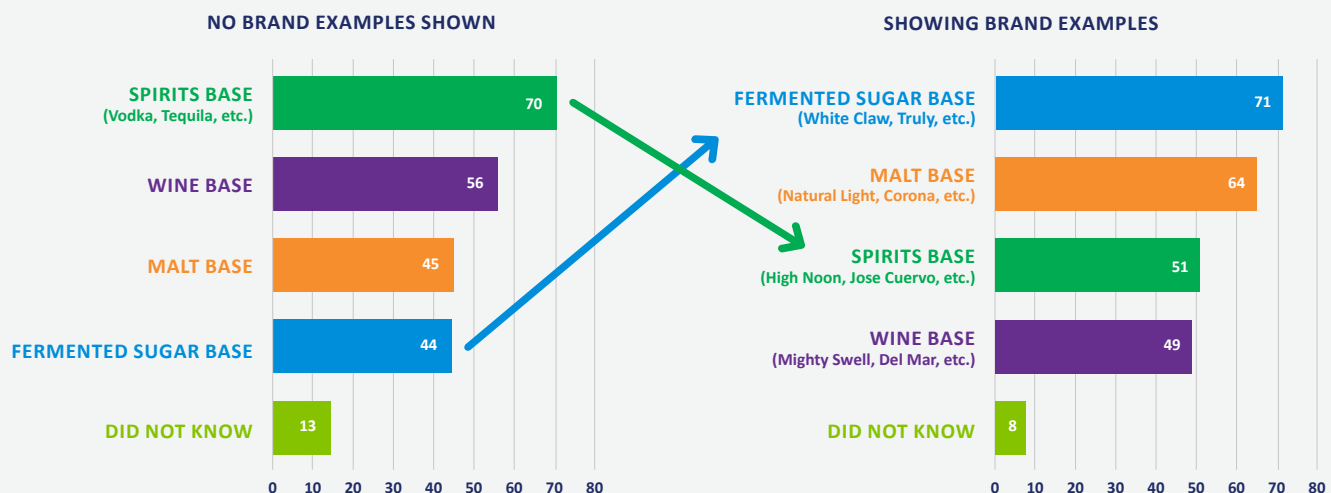


## What are You Drinking?

A recent global FMCG Gurus study found that overall, consumers demonstrated a preference for a spirit-based RTD alcohol when compared to sugar, malt- or wine-based alcohols.<sup>7</sup> ADM questioned whether the respondents were aware of what alcohol base was used to produce their favorite summer refreshment and discovered that, in fact, **consumers do not necessarily know what they are drinking.**

The following ADM Outside Voice<sup>SM</sup> consumer study found that a majority of consumers believed they were predominantly consuming spirit-based RTDs. When ADM included examples of established brands alongside their corresponding alcohol bases, the results became clear. **The study showed a 62% difference in consumers selecting fermented sugar bases as their usual RTD-based beverage once recognizable brands were included.**

### WHAT ALCOHOL BASE(S) DO YOU USUALLY DRINK IN HARD SELTZERS?<sup>6</sup>



The study was conducted with two different samples of US adult consumers, who usually drink hard seltzers (at least once a month) N=2,590; N=2,214.

# Sugar Brew and Label Regulations

Consumers are evaluating labels now more than ever before, making your product's label highly important.

When it comes to ingredients used for fermentation, the regulations depend on the result of the ingredient outcome. When Liquid Dextrose Edge, or any fermentation aid, results in its complete use and is converted into another substance (in this case alcohol), the labeling of the raw material is not required due to the complete conversion into alcohol. Only when the ingredient remains in a product "as-is" that the specific source of the sugar or starch fermentation source must be on an ingredient list. **Therefore, you see alcohol on the ingredient label for sugar brew rather than the raw material source.**

**8 out of 10** adults intentionally **AVOID OR REDUCE SUGARS** in their diets<sup>9</sup>

**56%** of U.S. adults say they review **BEVERAGE NUTRITION FACT PANELS**<sup>9</sup>

**53%** of U.S. adults say they review the **BEVERAGE INGREDIENT LISTS**<sup>9</sup>



## Taste is Always King

Flavor will always take precedence in consumers' choice, no matter what. To give beverage manufacturers insight into consumer behavior, we asked consumers to rank their most important priorities they look for when purchasing hard seltzers.

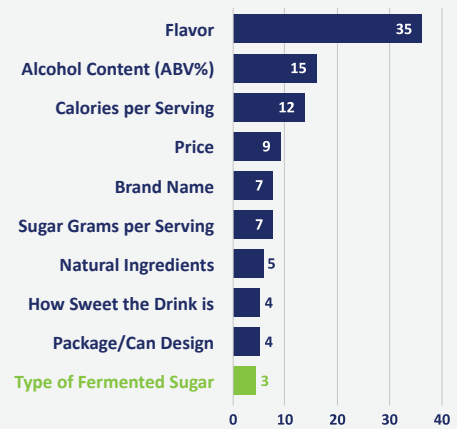
**The three main driving choices were taste, alcohol content and calories per serving—all of which benefit from fermenting with Liquid Dextrose Edge.**

Furthermore, we see the sugar source holding less of a priority than any other attribute, but this is not typically the case for all RTD bases. When we asked a different set of consumers the same questions with spirit-based RTDs instead, we saw that consumers do have a higher desire to understand the distilled spirit they are consuming, such as vodka, rum or tequila.

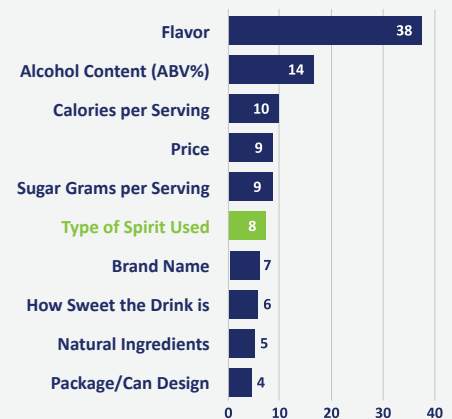
## RANKED IMPORTANCE OF ATTRIBUTES<sup>6</sup>

Showing % of respondents that ranked each attribute **FIRST** or **MOST IMPORTANT**

### TYPE OF FERMENTED SUGAR BASE



### TYPE OF SPIRIT BASE



Q: If you had to rank these attributes from the most to the least important to you when choosing a hard seltzer, how would you rank them?

The study was conducted with two different samples of consumers who claim to drink hard seltzers of the stated base (either fermented sugar N = 504 or spirit base N = 503).

Give consumers the great taste and benefits they want to find in hard seltzers, with ADM's superior fermentation expertise.



## HOLISTIC ALCOHOL TOOLBOX

Along with our extensive ingredient pantry, ADM engages in a journey of discovery to take your initial concept through to commercialization. By identifying trends and engaging in solution-oriented partnerships, we bring the competitive edge that can help you and your consumers win big.

### TASTE

- Acidulants
- Alcohol Enhancers
- Distillates
- Extracts
- Flavors
- Sweeteners
- Taste Modifiers

### TEXTURE

- Emulsifiers
- Starches
- Sweeteners

### NUTRITION

- Ancient Grains
- Botanicals
- Herbal & Fruit Extracts

### FUNCTIONALITY

- Alternative Proteins
- Antioxidants
- Natural Preservatives
- Oils & Fats
- Stabilizers

### COLOR

- Clouds
- Colors from Nature™



# Your Ideal Alcohol Partner

Striking a balance between consumer and business needs is key to winning in the market. ADM's ability to offer customizable and sustainable solutions helps partners deliver a fresh hard seltzer that stands out on the shelf.

By combining trend insights, commercial viability and formulation expertise, ADM helps you deliver best-in-class hard seltzer innovation that consumers trust.



## SOURCES

<sup>1</sup> Euromonitor International. NA. RTD Alcohol, May 2022

<sup>2</sup> ADM Outside Voice<sup>SM</sup> Hard Seltzer Market Exploration Study, January 2021

<sup>3</sup> ADM Research (2021, October). Internal Fermentation Research Results & Analysis. Decatur; ADM Science & Technology.

<sup>4</sup> American Chemical Society (2020, August 17) How sour beer gets so... sour. Phys.org.

<sup>5</sup> International Society of Beverage Technologists (ISBT) Quality Guidelines & Analytical Procedures, May 2010

<sup>6</sup> ADM Outside Voice<sup>SM</sup> Hard Seltzer Consumption, November 2021

<sup>7</sup> FMCG GURUS: Hard Seltzers – Identifying Attitudes and Behaviors in an Emerging Market, November 2021

<sup>8</sup> United Sugars Corporation and USDA Sugar Yearbook Tables, April 2022

<sup>9</sup> ADM Outside Voice<sup>SM</sup> Consumers & Sugar Reduction, August 2020

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