



BEVERAGES MADE BETTER WITH OAT BETA GLUCAN



KEY CONSIDERATIONS WHEN FORMULATING WITH OAT BETA GLUCAN

Functional beverages are increasingly becoming part of a healthy lifestyle for consumers around the world. They have the ability to meet consumer desire for 'personalised nutrition'¹ by offering a variety of claims such as digestive health, satiety and cholesterol benefits. Several other consumer trends are driving their appeal, including the desire for clean-label foods, an increase in snacking and the need for portability and convenience.²

As manufacturers create products to meet this demand, the fibre-fortified beverage category is one that continues to grow. From 2010 to 2014, there was a 56% increase in drinks launched globally containing fibre,³ ranging from teas to juices and smoothies.

These products are doing more than just offering on-trend claims. They are helping to fill the fibre intake gap that exists today. The World Health Organization suggests consuming 25 grams of fibre per day.⁴ Yet, according to the US National Health and Nutrition Examination Survey (NHANES), only 3% of all Americans currently meet recommended fibre intakes.⁵ In the UK, only 13% of women and 28% of men meet dietary fibre recommendations.⁶ Even with the best of intentions, consuming the recommended amount of fibre in a typical diet is difficult for the average consumer. For example, to obtain 25 grams of fibre from foods, a person would have to consume 13 slices of multi-grain or whole-wheat bread, 10 cups of broccoli or six medium apples.⁷

Fibre-enriched beverages give consumers another viable option to increase their fibre intake.

As they become more mindful of their fibre needs, consumers are checking labels for this nutrient. In fact, fibre has become the number one nutrient desired.⁸ In addition, as today's consumers demand a more convenient lifestyle, fibre-fortified beverages provide an appealing option.

OAT BETA GLUCAN

There are many types of fibre to choose from when fortifying foods and beverages, and growing in preference is beta glucan.

'Beta glucan, particularly from oats, is often a fibre of choice for use in many drinks because, depending on the country, it can allow manufacturers to add a heart-health claim', said Clémence Boutin, food scientist at Tate & Lyle. 'A large volume of clinical research has shown that oat beta glucan, as part of a healthy diet, helps to lower blood cholesterol. High blood cholesterol is a risk factor in the development of coronary heart disease'.

Oat beta glucan also has a low glycaemic effect. Research indicates that oat beta glucan, when consumed with meals, may help maintain healthy blood glucose levels after the meal.

Additionally, oat beta glucan can support gastrointestinal health and is a well-tolerated soluble fibre. It can assist in weight management through calorie and fat reduction in food formulations. More studies are required, but emerging data indicates the intake of oat beta glucan may also promote satiety and/or reduce energy intake at meals.

Finally, consumers are well aware of the goodness of oats, and food and beverage manufacturers are interested in this positive imagery.

OAT BETA GLUCAN CAN HELP PROMOTE CONSUMER HEALTH IN MANY WAYS:

- Lowers blood cholesterol
- Lowers the glycaemic effect
- Promotes digestive/intestinal health
- May help promote satiety
- Rebalances recipe fat and calorie content due to fat-mimicking properties

FINDING THE RIGHT FORMULATION

'In the past, a fibre-fortified beverage may have evoked images of bad-tasting, chalky drinks you consumed only because "they were good for you"', said Boutin. 'But today, great-tasting, mainstream juices, smoothies and other beverages are including fibre'.

However, not all dietary fibres work well in beverage applications. From clean taste to mouthfeel, manufacturers need to consider a variety of factors when developing a fibre-fortified beverage:

- **Claims.** When fortifying a beverage with fibre, manufacturers must consider the percentage of dietary fibre being added, as well as the amount needed to qualify for any desired claims. For example, the quantity of beta glucan needed per serving for a health claim in the European Union is 1 gram. Then, the serving size must be chosen. Depending on serving size, the concentration of beta glucan is calculated to reach the needed beta glucan quantity in the serving. The smaller the serving size, the more concentrated the beta glucan, and the thicker the drink. Beta glucan ingredients with higher purity make it easier to achieve a heart-health claim, as less of the ingredient needs to be used and therefore imparts a cleaner taste.
- **Solubility.** Manufacturers are mindful of the flavour, colour and texture of the finished product and how ingredients affect the finished beverage. The beta glucan ingredient selected should be highly soluble, to produce a fibre-fortified beverage with clean taste and smooth texture, with no grittiness.
- **Viscosity.** Oat beta glucans provide viscosity, so manufacturers should consider final viscosity desired in the beverage and take this into account when using beta glucan ingredients at claim levels. Beta glucan works well in a smoothie because consumers expect a thicker mouthfeel from this type of drink and, ideally, formulating with oat beta glucan should yield a clean taste and rich mouthfeel. Some beta glucans can be added to water and juices without adding a chalky taste.
- **Stability.** Manufacturers should look for a fibre ingredient that is also acid- and heat-stable 'to ensure the integrity of the ingredient is maintained', said Boutin.

APPLICATIONS

Popular uses for beta glucans in the beverage category include fruit smoothies, dairy-alternative drinks and powdered drink mixes.

Fruit smoothies typically require rich mouthfeel, which is why oat beta glucan is an ideal fibre ingredient. It brings thickness, indulgence and a mouth-coating effect, so consumers feel as though the drink is very rich in fruit juice/purée.

The neutral taste of some oat beta glucans works particularly well with a variety of drink flavours. In fact, fruit juices are the number one category for beverages fortified with beta glucans.⁹

Consumption of beverages made with oat beta glucan is an easy and tasty way for consumers to get cholesterol-management benefits. Oat beta glucan can be a versatile ingredient for manufacturers to use in the development of innovative products that promote health while helping to contribute to the population's dietary fibre needs.

Position your beverage for success

PromOat® Beta Glucan from Tate & Lyle offers three distinct advantages over other beta glucan products on the market today:

- Has superior solubility* and provides clean taste without grittiness
- Contains as high as 35% beta glucan, making it easy to achieve the daily dosages required for health-benefit claims
- Creates a smooth texture and rich, indulgent mouthfeel

*Amongst leading oat beta glucan suppliers.

Contact our experts for formulation advice –
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ABOUT TATE & LYLE

Tate & Lyle is a global provider of ingredients and solutions to the food, beverage and other industries, with operations in over 30 locations worldwide.

Tate & Lyle operates through two global divisions, Speciality Food Ingredients and Bulk Ingredients, supported by our Innovation and Commercial Development and Global Operations groups. The Group's strategy is to become the leading global provider of Speciality Food Ingredients through a disciplined focus on growth, and by driving Bulk Ingredients for sustained cash generation to fuel this growth.

Speciality Food Ingredients consists of three platforms: Texturants, which includes speciality starches and stabilisers; Sweeteners, which comprises nutritive sweeteners and our range of no-calorie sweeteners including SPLENDA® Sucralose; and our Health and Wellness portfolio, which includes speciality fibres and our salt-reduction offering. Additionally, our Food Systems business provides a wide variety of blended ingredient solutions.

Tate & Lyle Bulk Ingredients includes bulk sweeteners, industrial starches and fermentation products (primarily acidulants). Corn co-products from both divisions are primarily sold as animal feed.

Tate & Lyle is listed on the London Stock Exchange under the symbol TATE.L. American Depositary Receipts trade under TATYY. In the year 31 March 2014, Tate & Lyle sales totalled £3.1 billion.

SPLENDA® is a trademark of Heartland Consumer Products LLC.

For more information, visit www.tateandlylefibres.com.

References

- ¹ New Nutrition Business, Nov/Dec 2014; 10 Key Trends in Food, Nutrition & Health, 2015.
- ² Euromonitor Passport; Corporate Strategies in Health and Wellness, December 2014.
- ³ Innova Database.
- ⁴ The Joint WHO/FAO Expert Consultation on diet, nutrition and the prevention of chronic diseases: process, product and policy implications, http://www.who.int/nutrition/publications/public_health_nut9.pdf (accessed 1 April 2015).
- ⁵ Marriott BP, Olsho L, Hadden L, Connor P. 'Intake of added sugars and selected nutrients in the United States', National Health and Nutrition Examination Survey (NHANES) 2003-2006. *Crit Rev Food Sci Nutr.* 2010;50(3):228-58
- ⁶ Public Health England and Food Standards Agency. National Diet and Nutrition Survey: Results from Years 1-4 (combined) of the Rolling Programme (2008-2009 - 2011-12): Executive Summary. PHE Publications; 2014.
- ⁷ USDA nutrient database - United States Department of Agriculture www.ars.usda.gov/nutrientdata; USDA National Nutrient Database for Standard Reference Other Databases and Reports Dietary Supplement Ingredient Database Nutritive Value of Foods.
- ⁸ Natural Marketing Institute, Health & Wellness Trend Survey Compendium, 2013.
- ⁹ L. Steven Young, 'Fortifying beverages with fibre,' Functional Ingredients, www.newhope360.com/beverages/fortifying-beverages-fibre (accessed 6 April 2015).

Regulations on claims and labelling vary by country. Please consult your regulatory department.