



OAT-STANDING™ Plant based alternative to a dairy yoghurt

A complete range of tailored yoghurt and fermented solutions to meet the changing demands of your discerning customers

Glanbia Ireland - Goodness Grows Here

Glanbia Ireland (GI) is an ingredient solutions partner to some of the world's leading companies and brands. At the forefront of ingredient technology, we offer a range of solutions to match the ever-changing demands of the food and nutrition industry and its consumers.







With quality dairy and grains sourced from 5,000 Irish family farms, combined with advanced market research and insights, our unique platform offers fully traceable and sustainably produced natural solutions to help our customers stay ahead of the curve.

The Goodness of Oats

Sourced from Irish family farms, we take great care to guarantee the highest quality oats both conventional and gluten-free. Oats are a highly nutritious product which contain protein of a higher biological value than many other grains (only rivalled by rice)¹, a good lipid profile and starch components. Oats are also naturally a source of high quality dietary fibre - containing both soluble and insoluble fibre.

They naturally contain betaglucans which have many health benefits including helping to decrease high plasma cholesterol which is a major risk factor for heart disease. These are some of the reasons why it is one of the most promising raw materials for preparation of functional plant-based alternatives to dairy.

Oats are Nutritional and Healthy

-  Oats contain on average between 11-13% protein¹
-  They are high in soluble fibres, especially β -glucan, which helps to reduce and lower cholesterol
-  Naturally free from gluten
-  Naturally low in sugar, salt and saturated fats
-  Oats contain a range of minerals such as calcium, iron, magnesium and zinc
-  Suitable for vegans & vegetarians

What Your Consumers Say

Plant based products are enjoying market growth due to increased consumer demand for products with associated health and wellness benefits. Oats are one of the latest of many plant-based materials that have emerged as a nutritious dairy alternative source. Boosted by a sustainable and natural positioning that reflects consumer demands, the market now provides tasty treats for consumers who are opting more frequently for planet-friendly choices.

21% of US consumers describe themselves as following a flexitarian diet.

36 - 44% of European consumers agree that plant-based yoghurts are just as tasty as dairy-based yoghurts.

~50% of French and German yoghurt buyers agree that consuming foods with gut friendly ingredients can help support the immune system.

High quality products with sustainability claims are significantly more likely to be considered superior, natural and coming from a trustworthy brand.

54% of the global plant based yoghurt retail sales will be accounted for by the US market.

There is growing interest in ingredients that are associated with **added nutritional value**; such as oats (linked to high fibre).

References: Mintel, Innova, Euromonitor FMCG Guru, Global Data

Our Oat-Standing™ Functional Oat Flour

We use traditional methods to produce our high-quality oat products, producing the finest-tasting, most consistently performing oat ingredients on the market today. We go even farther, continually monitoring the entire supply chain from field selection to growing, storage, and milling.

Our Oat-Standing™ Functional Oat Flour is milled through a proprietary process and provides consistent viscosity throughout heating and cooling cycles. This unique ingredient offers valuable functional properties, clean labelling, and the dependable whole grain benefits and flavour you expect from more traditional oat ingredients. It is an ideal ingredient when you are looking to add flavour, nutrition, and viscosity to a wide range of end products.

Our oat flour has multiple application benefits:

- ✔ Heat stability
- ✔ Remains fluid and pourable through Ultra-High Temperature processing (UHT) and retort
- ✔ Nutritionally rich – performs at inclusion rates up to 19%*
- ✔ Silky, smooth mouth-feel, clean oaty flavour
- ✔ Gluten-free guarantee: <10ppm gluten guaranteed compared to <20ppm FDA guideline

Challenges



1. Grittiness/sandiness in end product

A key challenge for the manufacture of an oat based dairy alternative is the presence of gritty or sandy material in the end product, therefore, ensuring full initial hydration of the Functional Oat Flour is essential. GI recommends initial high shear mixing on introduction of the Functional Oat Flour to ensure full powder dispersion, followed by constant agitation for at least 15 minutes. This key step leads to improved textural properties, a glossier appearance and a smoother mouth feel in the resultant product.



2. Functional viscosity

Following a unique manufacturing process, GI Functional Oat Flour has the functional building blocks to create a thicker oat base. Oat protein primarily consists of the globulin fraction, and following heat treatment, denaturation occurs, resulting in the formation of aggregates and creating an increased viscosity base. It is widely known that oats lose structure in acidic conditions, the addition of a hydrocolloid aids textural properties without compromising on the clean oat flavour.



3. Natural, clean label

Using the highest quality Irish oats, plant based hydrocolloids and plant derived cultures, GI have created a natural, clean label dairy alternative. The use of non-dairy cultures, recommended by industry experts, to ensure suitability for vegans and vegetarians.

The Essential Elements and Process for Oat-Standing Dairy Alternative



Oat base formulation



Culture



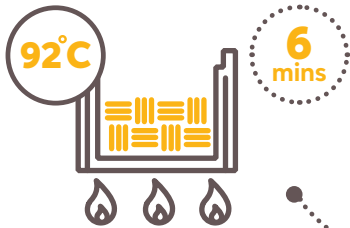
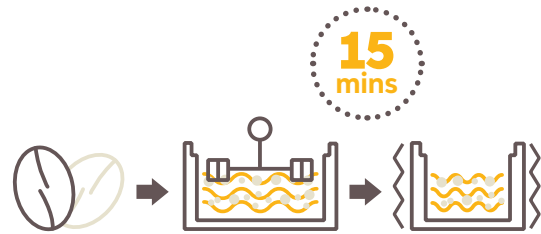
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Opti-Yo Dairy Alternative

Oat base formulation

The base preparation is an essential step as it influences the end product characteristics. Full hydration of the GI Functional Oat Flour is vital which is achieved by high shear mixing for full powder dispersion followed by constant agitation for at least 15 minutes.



Heat Treatment (92°C x 6min)

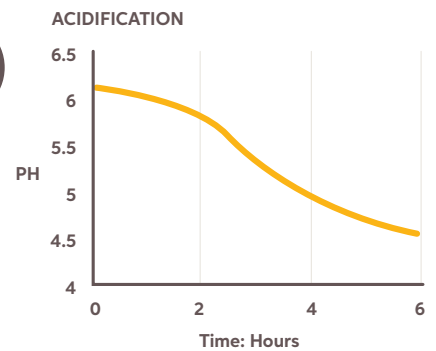
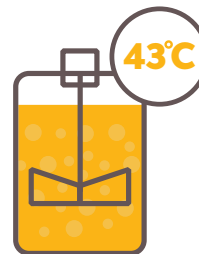
Although partially included for microbial reasons, heat treatment of the oat base ensures textural development by denaturing the globulin protein fraction.

Culture selection and final pH

The choice of culture influences characteristics, such as flavour, texture and appearance, of the final product.

Fermentation

During fermentation (43°C), exopolysaccharides (ESP) are produced by bacterial cultures, improving properties such as mouth thickness and appearance. The final pH of the coagulum (optimum pH 4.55) is another factor affecting resultant properties, affecting acidity and firmness of the end product.



Dynamic smoothing

To maintain excellent textural properties, the physical post treatment of the coagulum is important. It is critical to control the speed or smoothing back pressure post fermentation as this can disrupt the gel structure and can affect the final texture and viscosity.

Fill and Storage

Optimum potting is 20-25°C to maintain gel structure and storage at 4°C for shelf life.



Typical Opti-Yo Dairy Alternative Recipe and Nutritional Facts

Innovative plant bases are adding variety to the category with regard to flavour and nutritional value. Our sample recipe is a real plant-based innovation, which combines a source of carbohydrates oat as well as delivering an excellent clean flavour profile and high nutritional value.

Our sample recipe is highly nutritious oat based yoghurt that is low in sugar and fat. This solution is naturally a source of manganese which supports:

- ✓ Normal energy yielding metabolism
- ✓ Maintenance of normal bones
- ✓ Normal function of connective tissue
- ✓ Protection of cells from oxidative stress.

It is also naturally a source of fibre. Did you know that only 9% of UK consumers meet the recommended daily intake of Fibre?² According to NHANES, US consumers are also not meeting recommended Fibre intakes.³

References:

1. Nutrient Composition and Nutritional Quality of Oats and Comparisons with Other Cereals. Robert W. Welch; Northern Ireland Centre of Food and Health; University of Ulster.
2. World Health Organisation
3. Hoy et al. Fiber intake of the U.S. population. What We Eat in America, NHANES 2009-2010.

Recipe and Nutritional Facts

Ingredients	%
Water	78.7
GI Functional Oat Flour	19.0
Tapioca Flour	2.00
Salt	0.30
Non-dairy cultures	500U/2500L

Typical Nutrition Information	Per 100g
Energy kcal/kJ	88kcal/371 kJ
Fat g	1.50
Saturated Fat (g)	0.19
Carbohydrate	16.0
of which sugars	0.95
starch	1.90
fibre	1.40
Betaglucan g	0.70
Protein g	2.30
Salt g	0.13
Manganese g	0.76

Summary

Many consumer trends converge to make this product category extremely popular, including sustainable and healthy foods, flexitarian and lifestyle. The addition of our Opti-Yo Dairy Free formulation has shown:

- ✓ **Firmer texture**
- ✓ **Exceptional sensory characteristics**
- ✓ **Good nutritional profile**

Create great tasting, nutritious yoghurt structures with our unique Opti-Yo solutions range.

Our R&D function



The innovation hub

Our Innovation Hub houses world class facilities enabling us to bring our concepts to life.



Leading the way in process and technology

Functionalising and developing ingredients whilst always maintaining nutritional integrity.



Our external ecosystem

Our extensive network of external partners ensures we are agile.



Developed by our experts

Our team of experts passionately researching the worlds of dairy and plant.



Providing superior nutrition

At Glanbia Ireland the foundations of nutrition are built on dairy and plant. Our ethos: "Good for You, Good for the Planet".

Get in Touch

To find out more about how Glanbia Ireland can support you in developing your solutions, please contact us directly.

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