



RESULTS MAY DAIRY:  
using emulsifiers and  
stabilisers to meet dairy  
alternative demands

**To compete, and appeal to consumer demands, manufacturers are increasingly faced with formulation and production challenges relating to the use of emulsifiers and stabilisers in dairy alternatives.**

**Natasha Spencer-Jolliffe explores the hurdles manufacturers operating in the dairy alternatives sphere face and how suppliers can tackle such formulation and production obstacles around soy, rice and almond drinks**

**A**s our evolving diets shine a spotlight on our nutrition, health and wider environment, vegan and flexitarian diets inspire new innovations in the plant-based market – with dairy alternatives taking centre stage.

Flavour, health benefits, ingredient sources and all-natural offerings have been cited amongst the most important attributes that dairy alternative shoppers base their purchasing decisions on, Comax Flavors revealed in its non-dairy study.

As such, soya, oats, nut and rice milks have captured the attention of consumers seeking dairy alternatives that have healthful and nutritious properties with broad market appeal.

### DAIRY ALTERNATIVE APPEAL

“The dairy alternative segment is currently growing at a double-digit rate, while the dairy market is declining,” emphasises Sonia Huppert, global marketing lead Plant Health & Meal Solutions, at plant-based dairy alternatives specialists, DuPont Nutrition & Biosciences.

Developing dairy alternative products that have a healthier profile, such as reduced sugar or containing probiotics and prebiotics for digestive health, along with sustainable plant bases from fair-trade sources, are opening up opportunities in the dairy alternatives space.

Describing how plant-based dairy alternatives is “becoming a very interesting market”, Giselle Baez, regional application manager at global emulsifier and stabiliser company for food ingredients, Palsgaard Ind. de Mexico, states that at present, “the availability and characteristics of raw materials play a key role in the final product and in the production”.

Commenting on “the significant growth potential for the many manufacturers who are entering the segment”, DuPont’s Sonia Huppert relays that what is important is that manufacturers “differentiate their brands while responding to consumers, who pay increasing

attention to how healthy and sustainable dairy alternatives are”.

### WHAT’S THE ROLE OF EMULSIFIERS AND STABILISERS?

Using emulsifiers in food products supports formulation by ensuring the oil or fat is equally distributed throughout the food item. Keeping fats dispersed homogeneously is a vital part of the formulation process as it contributes to the dairy alternative product’s overall taste, texture and appeal. Emulsifiers can help bind water and oil for a longer period of time, helping to ▶

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increase the shelf life of the product. It is then the role of stabilisers to support the texture by improving its cohesiveness.

In dairy alternatives, adding emulsifiers and stabilisers can help to avoid separation of fat as well as the sedimentation of insoluble solids. Plant-based dairy alternatives often feature vegetable fats that are sourced from the original ingredients, such as soy, almonds or cashews. A variety of emulsifiers are also made from vegetable-based raw materials such as palm, rapeseed, sunflower and soy; while stabilisers are also often made from natural raw materials.

### CHALLENGES FACING MANUFACTURERS

Dairy alternatives such as soy, rice and almond drinks require variations in fats and oils compared to dairy products. "Of course, every new plant-based alternative dairy product represents a challenge," confirms Palgaard's Giselle Baez.

Emulsification plays a crucial role in the formation and stability of manufactured food products. Handling emulsification in dairy alternatives, therefore, presents specific considerations.

#### 1. Navigating differences between dairy products and dairy alternatives

As the "amount and type of fats and oils used in dairy alternatives differs completely from dairy products", Palgaard's Giselle Baez

highlights that the "recommended emulsifiers and doses of such may also vary compared with a dairy product".

Along with the functional and quantifiable attention required in formulating and manufacturing dairy alternatives, Giselle Baez emphasises how "knowledge on the final application is very important in order to use the most adequate emulsifier or emulsifiers and achieve the best performance of them".

When it comes to the stabilisation of dairy alternative products such as soy, rice and almond drinks, Baez states that stabiliser performance comes down to synergy and understanding the performance of available hydrocolloids.

Hydrocolloids comprise of a colloid (particle) that is mixed in water (hydro) to offer the desired texture, viscosity or structure in dairy alternative products.

Emulsification refers to the process of dispersing one liquid (containing the bioactive compounds) in a second immiscible liquid, by applying electrostatic, or hydrophobic, or hydrogen bonding interactions between the bioactive compounds and an encapsulating material.

An emulsifier is an agent that can produce an emulsion, which means it can bind liquid phases that are not naturally friendly to each other.





DuPont, for example, has launched a plant-based range that focuses on providing stabilisation throughout shelf life, particle suspension and texture optimisation. Its solutions are based on various hydrocolloids plus emulsifiers, calcium and sequestrants.

## 2. Giving consumers what they want

Yet, in 2020 the biggest challenge facing dairy alternative manufacturers is undoubtedly meeting “consumer demands”, Baez answers. With “clean label or clear label products, very long and stable shelf life, natural products with the least possible ingredients and also organic labels if possible” all sought after, manufacturers have to constantly evolve to keep up with changing preferences.

If we take the demand for a long and stable product shelf life, for example, Baez explains that achieving this is “a very big challenge – considering emulsifiers and stabilisers are part of an additives list sometimes targeted by unfriendly propaganda”. Due to the perceivably negative presence of emulsifiers and stabilisers, “it is difficult to make consumers understand that they are very inoffensive substances coming mainly from plants and vegetable oils”, Baez adds.

Making strides to increase consumer knowledge is, therefore, a big priority for global emulsifiers and stabilisers name, Palsgaard. In its blog, *Emulsifiers for good*, the company details what emulsifiers and stabilisers do for us, why they are useful in day to day food consumption and where they come from.

## 3. It's all about the senses

“Taste and texture optimisation continues to be one of the biggest challenges in this segment, especially when diversifying bases,” reveals DuPont’s Sonia Huppert, when detailing one of the biggest challenges currently facing dairy alternative manufacturing.

Optimising yield, fermentation and stabilisation through enzymes, cultures and texturants is how ingredient player DuPont is currently overcoming the core challenges in the area of taste. The inclusion of proteins, fibres, prebiotics and probiotics are also popular options for brands looking to improve the nutritional profile of their dairy alternative products.

## THE FUTURE FOR DAIRY ALTERNATIVE MANUFACTURING

Other key challenges present today for dairy alternative manufacturers extend to raw material availability and the impact of global warming on crops in determining prices and



processes. “Generational changes and marketing trends” is also a current challenge that Baez suggests may also affect the demand of dairy alternative products moving forward.

Identifying the manufacturing capabilities required to produce dairy alternatives with no dairy and no soy is a hurdle manufacturers are also facing, DuPont’s Sonia Huppert adds, “which is restricting the possibilities of production”.

Detailing this particular dairy alternative production challenge as “especially interesting”, Huppert notes that the main consumers driving the growth of the dairy alternatives segment are “not vegans or vegetarians anymore, but flexitarians”.

Consumers want more choice, so they have access to a dairy alternative option that matches their purchasing preferences. As a result, manufacturers need to respond by introducing new, exciting products that will attract more to the dairy alternatives category.

Looking ahead, DuPont highlights that one way manufacturers can do this and secure their competitive place in the market is through a variety of protein bases that secure premium taste and texture, and will continue to be sustainable, even as demand grows. [\[7\]](#)

A stabiliser will bind and absorb significant amounts of water, maximising the potential to increase the volume and texture of the food product. Stabilisers contribute to the texture of food products by helping to make them more cohesive.

There are also some stabilisers that can retain insoluble heavy particles, such as plant fibres, that can be suspended and homogeneously distributed in beverages, instead of sinking to the bottom as sediment.



Giselle Baez, regional application manager at global emulsifier and stabiliser company for food ingredients, Palsgaard Ind. de Mexico