The surprising versatility of a key natural resource – and what FMC is doing to help ensure its renewability for future generations.

A THREE-PART STORY

Pardon Me. Is That Seaweed in My Milk?

The surprising versatility of a key natural resource – and what FMC is doing to help ensure its renewability for future generations.
In the last two parts of this story, we explored seaweed stewardship in cold and warm waters around the world and took a closer look at how FMC is helping improve the quality of life for seaweed harvesters in sometimes remote regions of the globe. As an essential raw material for food and consumer products ingredients supplied by FMC BioPolymer, this renewable resource deserves special care. At the same time, the production processes surrounding its byproducts must be managed to ensure greater sustainability.

**Mindful of the Planet and Customers**

Wherever it is harvested, before seaweed goes to market, it must be dried. In many locations FMC employs two other abundant natural resources – sun and wind – to remove moisture, reduce weight for shipping and processing, and eliminate the need to consume fossil fuels to achieve the same result.

Gerard Lynch is FMC BioPolymer’s Technical Manager, Food Business. “FMC’s efforts to deliver not only superior products, but also to streamline production, reduce costs for production and shipping, and minimize environmental impact go back to the ’70s when we first entered this business,” he says.

Each customer is unique, and each customer’s product is a unique challenge for FMC’s R&D efforts. These efforts are guided by the following equation and a desire to provide the most value to each customer.

**Hot and Cold: Reducing The Carbon Footprint**

In the U.S., dairy products are pasteurized. Not so in the rest of the world, where refrigeration throughout the supply chain – in manufacturing, transportation, storage and display at retail – is not as prevalent. Instead of pasteurization, dairy products go through a process called UHT, which fundamentally sterilizes the products at a much higher
heat for a much shorter time. UHT products need no refrigeration and remain stable for 1-3 years. With a faster and more energy-efficient production process and the elimination of supply chain refrigeration, these products are brought to market with a much lower carbon footprint.

But not without some help from FMC BioPolymer.

Consumers still want creamy texture, good mouth-feel and long-term stability from dairy products. FMC’s Avicel, which is made from another renewable raw material, wood pulp, delivers those desired characteristics. The more complex the final product, the more a manufacturer may need FMC’s expertise.

The Taste and Feel of Sustainability

International chocolate milk drinkers, for instance, want an even distribution of chocolate flavor throughout the drink. To prevent particle separation during storage or consumption, all-natural carrageenan in the form of FMC’s SeaKem™ Stabilizers, is added to the mixture. When customers serve the needs and desires of their consumers, there are fewer returns and less waste. Long-term stability in a room temperature environment – whether it’s a warehouse, a display shelf or a home – dramatically reduces energy consumption and costs and an individual product’s carbon footprint.

Ready-to-eat dessert puddings can be made with some kind of starch as a primary ingredient. These products are processed under low heat for a long time, burn easily and are typically expensive to make. A small amount of carrageenan found in FMC’s Lactogel™ Texturizers gives the product a better texture and mouth-feel. It also streamlines the production process, reducing waste and energy consumption.

Chocolate mousse, another international favorite, is typically made in a hot process. When an FMC alginate product, Protanal™ Stablizers, is added to the mix, the product can be made without heat, whipped to creamy perfection and shipped with a long, stable shelf life. The addition of alginate eliminates the energy costs associated with hot production.
The Dry Facts About Water

One shipping issue that concerns many manufacturers is “food miles.” This refers to the cost of shipping products, by weight, to their ultimate destination. When shipping food, the majority of product weight often comes from water. Milk, for instance, is 85 percent water. Most food products are 60-70 percent water. It is simply more sustainable to ship dry products.

The markets are huge for dry mix products consumed on a large scale in everything from creams and sauces to bakery ingredients and marinade mixes. Naturally, the consumers who ultimately use those products have expectations for texture and mouth-feel that must be met once water and other ingredients are added to the dry product as it is prepared and served. Again, FMC’s carrageenan and alginate-based products enable those dry mix manufacturers to make the most of their food miles, reducing both their shipping costs and environmental impact, while delivering the end-product characteristics consumers most desire.

But there’s even more to the sustainability picture in this product area. Take, for instance, a product like Jello®. Manufacturers can use gelatin to deliver its desired performance in a restaurant, cafeteria, or on a kitchen table. Gelatin, however, also must be manufactured, which in turn increases the carbon footprint of the end product. When gelatin is replaced with FMC’s carrageenan product, Gelcarin™ Gelling Agent, which delivers the same properties, that carbon footprint is dramatically reduced.

New Discoveries for Ingredient Uses

The versatility of carrageenan and alginate, along with FMC’s commitment to R&D, has led to a host of other sustainable products, processes and practices. Both ingredients are made of charged molecules that react well with other materials. This can be particularly effective for creating separation and boosting the performance of other materials.

Oil rigs use and contaminate water during operations. But adding FMC’s alginate product Sorbfloc™ to the water makes it easier to separate the oil from the mix and return clean water to the sea.
The natural tendency to boost the performance of other materials makes carrageenan particularly effective with insecticides. FMC’s SeaSpen™ improves the ability of insecticides to adhere to their target surfaces—insects. So less actual insecticide is needed to do the same job, reducing the impact on the environment as well as the health of the people doing the spraying.

Creating a Sustainable Future

Today, 98 percent of FMC BioPolymer products are made from renewable raw materials. But in the view of FMC’s leadership, there is always more room to improve.

On the horizon for FMC is the creation of a sustainability certification program, designed to establish industry standards that promote environmental responsibility and reduce ecosystem impact throughout the cultivation, harvesting, processing, production and marketing cycles. After all, the best way to demonstrate how well we are doing is to set specific goals and measure our results. The program’s metrics will track improvements throughout the supply chain and demonstrate that FMC continues to be an industry leader in raw material procurement and processing.

Can the drive to create shareholder value also be good for the planet? We wouldn’t have it any other way.

Add Your Thoughts

Do you have comments or ideas on sustainability for FMC? Please share them at sustainability.info@fmc.com.