



Helping hands: What can contractors do for you?

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Born from a vision of creating a circular economy of food that closes the loop in today's current supply chain and reduces environmental impact, Renewal Mill saw its okara product launch to market through the help of co-manufacturers. **Caroline Cotto** talks about how the ingredients company upcycles byproducts into high quality ingredients and keeps valuable nutrition in the supply chain.

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Evoaware has developed seaweed packaging that is not only biodegradable and eco-friendly, but is also edible and offers health benefits when ingested. **David Christian** explains how working collaboratively with local seaweed providers is reducing plastic pollution and empowering the Indonesian community.

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Deposit return schemes (DRSs) may offer a path toward reducing packaging waste across Europe. However, as **Jacques Moss** details, DRSs need to be a part of a broader initiative that includes consumer education and development of more sustainable packaging options.

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Pack it in

A **Growing demand for and awareness** about functional foods and beverages means the global nutraceuticals market is growing rapidly. Regardless of their size, companies are getting increasingly innovative across all areas, but businesses are seldom able to make the magic happen on their own. Contractors play a significant role in expanding on existing offerings and launching new products to market.

While it costs nothing to come up with a great idea for a product, the process of bringing it to life certainly does. It's important for businesses to be mindful of the quality and quantity of product they'd like to produce and select a co-manufacturer accordingly. Compromising on aspects such as the cost of service may ultimately mean compromising on product quality – and this may well have a direct impact on market success or brand credibility. Both market giants and start-ups can benefit from the various services a co-manufacturer offers – such as sourcing ingredients, product research, attaining necessary certifications and remaining compliant with food regulations. Selecting a suitable one will depend entirely on a company's individual needs and additional support requirements.

If you're a newcomer to the market, you might be interested in how Renewal Mill, start-up finalists at the recent Health Ingredients (Hi) Europe show, accelerated its okara product to market with the help of co-manufacturers ([page 4](#)). We also speak to David Christian ([page 7](#)), the visionary behind a small Indonesian company manufacturing biodegradable and edible seaweed packaging. Evoware has already made viral waves across the online space, gaining exposure through the likes of BBC and other influential platforms. There is growing interest in the sustainable features of edible packaging, but market offerings are currently limited. Certainly, a space to watch closely as the future of sustainable packaging evolves.



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Lessons for start-ups

How Renewal Mill accelerated its product to market

by *Caroline Cotto*

Renewal Mill, with its roots in California, was born from a vision to reduce food waste and provide affordable nutrition. The start-up was founded as a next generation ingredients company that upcycles byproducts into high quality ingredients and keeps valuable nutrition in the supply chain. Renewal Mill's vision is to create a circular economy of food that closes the loop in today's current supply chain and reduces environmental impact. Renewal Mill's flagship product is okara flour, harvested from the pulp of organic soybeans during soymilk production.



Sourcing a co-manufacturer

Renewal Mill has a unique co-location model, so when determining which byproducts to upcycle, we also carefully choose our partner facility. Our technology tacks onto the end of the manufacturing line at these partner facilities, so it is a critical strategic choice. The first partner was Hodo, the largest artisanal tofu factory in the United States. The connection happened when the CEO came to speak at an event at Yale University where Renewal Mill's co-founders were master's students.



“Renewal Mill has a unique co-location model, so when determining which byproducts to upcycle, we also carefully choose our partner facility.”

However, once okara production was underway, it was a natural extension to also make value-added products—specifically, a soft-baked vegan chocolate chip okara cookie. Originally, the cookies were produced in a commercial kitchen in Oakland, California, with talent sourced from tofu factory employees looking to pick up some extra shifts. But when the time came to scale the cookie operations, one of Hodo's employees introduced us to a friend of his who is the operations and production manager at a co-packer that was a perfect fit to produce the cookies. So essentially, the company did source its co-packing support through known contacts.

Ticking the boxes

When it came to selection criteria for a co-packer, the first one was that they be based in the San Francisco Bay area since the company's largest customer is in the area, and all the cookie deliveries were being done by the Renewal Mill team. Second, we needed a co-packer that had equipment capable of doing drop-baking, could flow-wrap individual cookies, would be willing to sticker the cookies (front and back), and would pack them into boxes of 30 units.

Next was finding a co-packer with minimums within scale—4,000 bi-weekly. Some co-packers have much larger minimums (i.e., 20,000 biweekly), which wasn't yet sustainable. Then, it was important that the co-packer would accept direct deliveries for ingredients and had storage space for ingredients and finished products. Finally, the co-packer had to be kosher and vegan certified and could run the cookies on a vegan-only production line.

Committed to sustainability

As a company with a mission of reducing food waste and helping protect the environment, finding a co-packer with the same sustainability practices was important. All the employees needed to receive a living wage, and the co-packer had to use appropriate food safety and compliance measures. We also wanted to find a co-packer that was conscious of its own food waste and taking measures to reduce it as much as possible.

Additional services

Right now, Renewal Mill is selling the vegan soft-baked okara chocolate chip cookies at retail. These cookies act as a revenue-generating marketing department, and co-packers handle the production. They provide help with ingredient sourcing, delivery, and storage, and have been instrumental in offering advice on packaging design and materials.



The co-location model is a unique one for collaborative work with manufacturing partners, since we are upcycling their byproduct. Because they are experts in their own production line, they offer plenty of advice on how to get the most throughput, what the machines can handle, and how best to ensure food safety of the ingredients being produced. We also leverage the knowledge of their engineering and plant management team to help with R&D when it comes to improving the efficiency of our technology and equipment.

Learning curve

No venture comes without lessons and challenges. One of the biggest challenges was finding a co-packer willing to do production runs at a smaller size and quantity. We are still growing, so it takes a unique co-packer to agree to do runs in the low thousands of unit numbers rather than the tens of thousands.

We rely heavily on strong relationship-building and the promise that we will be able to scale operations as we build the brand and demand—but it still means the co-packer has to have a lot of confidence in us. Additionally, when working with a co-packer, cost is a key issue. On the one hand, it's great that a co-packer is willing to do smaller production runs; however, larger production runs would significantly reduce costs. Thus, we had to negotiate a price that would allow at least some margin, even if it is small to begin with.

In addition, all the cookie production runs must happen in the morning, because that is when the manufacturing line is approved for vegan production. In the afternoon, the co-packer converts the line and it is no longer safe to run vegan products on it. So, to maintain certification standards, our production schedule is worked into the co-packer's schedule.

Takeaways for other start-ups

Don't let the seemingly daunting process of finding a co-packer deter you from bringing your idea to life. In many major cities in the United States (and globally), there are regional organisations that help connect budding entrepreneurs to the resources they need to get their ideas off the ground. In Boston, for example, Branchfood has a ton of resources and events aimed specifically at small consumer packaged goods (CPG) producers. In Minneapolis, Grow North has a similar goal. And, in the San Francisco Bay area, incubator kitchens, like KitchenTown, can help with product testing and connecting entrepreneurs with known co-packers. The greatest advice is don't be afraid to ask for help. Also, consider attending some of the bigger trade shows, like Natural Products Expo West in the United States or Anuga in Germany, to showcase your product and talk to different start-ups about which co-packers they use. Finally, there are some good online resources and directories that break down co-packers by category, which can be filtered to suit different needs. ●

Caroline Cotto is the COO of Renewal Mill, a next-generation ingredients company upcycling the byproducts of food manufacturing to reduce waste. Prior to joining Renewal Mill, Caroline followed her curiosity around the world, serving as a Fulbright Fellow in Taiwan, working for the UN World Food Programme in Cambodia, and interning for Michelle Obama at the White House. She spent the last two years at HubSpot, a global tech company, running their women's diversity program.

Chew on this

Sustainable packaging in the form of edible seaweed

by David Christian

Tides are turning

Indonesia is the world's second greatest plastic-polluting country in the world after China. Ninety percent of plastic waste ends up in the ocean, and 70% of that waste comes from food and beverage packaging. Evoware was founded to provide alternative and responsible packaging solutions that not only combat environment and waste challenges, but also empower the local community.



Indonesia is one of the biggest seaweed producers in the world, but most of the seaweed is exported to other countries to be developed into finished products. Due to the length of the supply chain, seaweed farmers are only the very initial players and compensation is very poor.

Evoware developed seaweed packaging that is not only biodegradable and eco-friendly, but is also edible and offers health benefits when ingested. Working collaboratively with seaweed farmers in Makassar, capital of Indonesian province South Sulawesi, Evoware provides work opportunities to locals and ensures they are paid a fair and liveable wage.

Why seaweed?

Seaweed was selected for a number of reasons. First, it is naturally abundant in Indonesia thanks to favourable geographic conditions. Seaweed is quick to produce and does not require fertilisers, but waste collected during post-processing can be turned into natural fertiliser for plantation. Agriculture is easy and seaweed only takes approximately 45 days to cultivate. Seaweed absorbs carbon dioxide and releases oxygen thereby improving water quality—effectively, the more seaweed planted, the better. Indonesia's vast coast line offers great potential to grow the market of seaweed farming, but it is important for businesses to exercise sustainable, non-invasive farming practices to minimise disruption to the ocean and marine life. There is concern as to how coast life might be affected by a growing seaweed farming market, but seaweed will only grow in healthy ocean environments, so farmers actively participate in maintaining cleanliness of the shoreline.



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The process

Indonesia is home to 17,508 islands, and with thousands of islands not utilised for seaweed cultivation, raw materials are widely available. Seaweed is cultivated by local Indonesian farmers for 45 days before being harvested. An initial cleaning process is done using no chemical ingredients. The seaweed is then transported to a processing facility where another cleaning is performed. A processing machine then dries and rolls the seaweed into a long, thin sheet. At this point, depending on the customer's order, the sheets are cut to the required size and are then heat-sealed as needed. Most of Evoware's clients use the seaweed packaging for burger wraps, coffee and tea sachets, and cookie packaging—although it has also attracted non-food products such as soap.

Seaweed packaging is designed to dissolve in water, so keeping the materials dry during production and transport is essential.

The current challenge with seaweed packaging is the cost. Now in its second year of operation, Evoware still supplements the process with semi-manual production, but prices are expected to be reduced as mass production improves.

The finished product

The final seaweed packaging is flexible and has a similar texture to plastic packaging—aside from the fact that it dissolves in water and is biodegradable when disposed. It offers nutritious content and is largely safe to consume, other than for those who might have an allergy. The packaging has a shelf life of up to two years, as no preservatives are used in the production process. There is potential to customise taste and colour using natural additives, and to brand the packaging with naturally-printed logos. The packaging is Halal-certified and in compliance with HACCP standards.

The packaging is suitable for dry food products, such as coffee, creamers, cereal, powdered ingredients and seasoning. The material is tolerant to moisture making it suitable for foods such as burgers, sandwiches and rice. In addition to food products, it can also be used as a sachet to package products such as soaps, toothpicks, or napkins. ●

Nutrition content (grams per m2)

Lipid 0.75	Selenium 2.07	Calcium 0.61
PUFA 0.48	Copper 0.02	Magnesium 161
Polysaccharides 30.23	Sodium 0.81	Iron 1.02
Dietary Fiber 22.76	Potassium 2.43	Zinc 0.15

David Christian is co-founder of Evoware (Evoware.id) as well as chief of sales, marketing and impact. An innovative entrepreneur with business background gained in Canada, he is also the head of micro business and creativity at a local entrepreneurial association. He will lead the sales and marketing team. He leads the sales and marketing team and is also responsible for ensuring that Evoware achieves its social and environmental impact goals.

Anti-waste efforts

Understanding deposit return schemes

by Jacques Moss

Introduced in July 2018, the amended version of the European Union's (EU) Packaging and Packaging Waste Directive has upped the ante for the European packaging and recycling industries. To meet the new targets, a minimum of 65% of all packaging waste by weight must be recycled by 2025, and 70% by 2030.

How individual countries choose to reach these targets will vary, but boosting consumer participation in recycling schemes will be a core objective. Although there are many ideas on the table, there is some uncertainty about how effective different approaches may prove to be.

One method that has met with some success is the use of deposit return schemes (DRSs). Under a deposit return scheme, consumers can recoup part of the cost of a product if they bring the packaging back for recycling.

In Sweden, where DRSs have been introduced, recovery rates have climbed to 86% for cans and 77% for plastic bottles. Germany's success has been even more marked, with recovery rates for aluminium beverage cans averaging over 99%, and between 97% and 99% for non-reusable bottles.

These figures compare to recycling rates across the EU for aluminium beverage cans of 74% and for plastic bottles of 57%. In many parts of Europe, including the United Kingdom (UK), the percentage is substantially lower.

Learnings from the UK

Although the UK may not be bound by the Packaging and Packaging Waste Directive after it leaves the EU later this year, the country has nonetheless taken an interest in using the DRS model to improve its recycling rates.

Last December, the UK government's Department for Environment, Food & Rural Affairs launched a new Resource and Waste Strategy, which includes a plan to introduce a DRS for drinks containers.



However, the strategy came under some criticism for delaying the implementation date for the DRS until 2023. The activist organisation Surfers Against Sewage estimates that the five-year delay could result in 28 billion additional plastic bottles going unrecovered.

The delay in implementation is partly a reflection of the fact that, despite successes elsewhere on the continent, there are still questions about the best way to implement DRSs. Both consumers and packaging manufacturers have expressed reservations about the possible consequences of poor implementation.

Implementation is key

To ensure that deposit return schemes are successful, regulators must take several factors into account. Firstly, they need to ensure that the facilities exist for consumers to return packaging without difficulty, to keep participation rates high.

Second, they need to ensure that the introduction of DSRs does not undercut efforts to introduce more sustainable or biodegradable forms of packaging. Critics of Germany's 'Pfand' deposit return scheme have pointed out that rates of sustainable packaging have not increased; in fact, the percentage of reusable bottles in circulation has fallen.

Finally, DRSs need to be part of a broader packet of measures designed to reduce consumer waste. As they only apply to specific forms of packaging—and generally those that are the easiest to recycle—DRSs must be complemented by effective recycling measures targeted at more problematic forms of household waste.

Although these problems have slowed implementation, momentum in the UK seems to be gathering. The Greenredeem DRS pilot, announced on the same day as the Waste and Resources strategy, will see 50 'reverse vending' machines deployed across two English boroughs to collect plastic bottles.

Further DRS pilots carried out by the supermarkets Iceland, Tesco, Morrisons and Co-op have also gone forward. In the six months following on from May 2018, the Iceland trial—which involved only five machines—was responsible for the recovery of over 310,000 plastic bottles. The scheme has now been extended for a further six months.

These trials will provide additional data on consumer behaviour, to help ensure that DRS implementation is effective.

To learn more about Deposit Return Schemes, attend the Packaging Waste and Sustainability Forum in Brussels this April. The forum provides an indispensable venue for obliged industries to discuss solutions, gain contacts and develop cost-effective approaches to minimising the proportion of unrecoverable waste. ●

Jacques Moss is the content marketing manager for KNect365 Energy, where he writes about natural gas, biofuels, sustainable shipping, the energy transition and the circular economy.



Takeaways for Your Business

A **As the market continues** to grow, businesses are going to tighten their grips to reliable, responsible and trustworthy contractors. Not only do they play an imperative role in launching products to market and turning concepts into finished products, but they are also a key block in the supply chain—and with traceability pressing down on businesses across the board, brands will want to ensure their co-manufacturers align with their transparency efforts.

There is certainly a drive for businesses to exercise sustainability as far as possible and reduce plastic use where possible. This vast movement has given rise to the concepts of biodegradable and edible packaging. While alternative packaging companies are currently faced with challenges of cost and lack of mass production capacity, the future is certainly in their favour.

Expanding on the thought of sustainability, leaders across the globe recognise the impact that plastic pollution and other packaging waste has on the planet's future. Widespread concern has motivated countries to put the necessary measures in place to combat waste and reduce pollution—especially that caused by food and beverage packaging. While companies are doing their bit to reduce, reuse and recycle, the message can be further extended to the consumer through package labeling directing them toward correct disposal practices of a used product according to the consumer's region and in line with national guidelines.

When it comes to selecting a contractor that works best for a particular brand, it is important to explore the options and take factors such as proximity, cost, ability to scale and quality of production into account. It is widely known that contractors and co-packers can offer additional services all the way from ingredient sourcing to certification and legal compliance of a finished product, but choosing a contractor that offers this support will depend entirely on the brand's individual needs.

Companies are advised to find a co-manufacturer that aligns closely with its needs, and establish a working relationship for the long term. The more a contractor is able to understand about a brand's products and business direction, the better positioned they are to advise accordingly and help to shape product development. On the other side of the coin, the more a brand can understand the manufacturing process, the better an idea they will have of what services are and are not possible, as well as where outsourcing may be required. ●



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