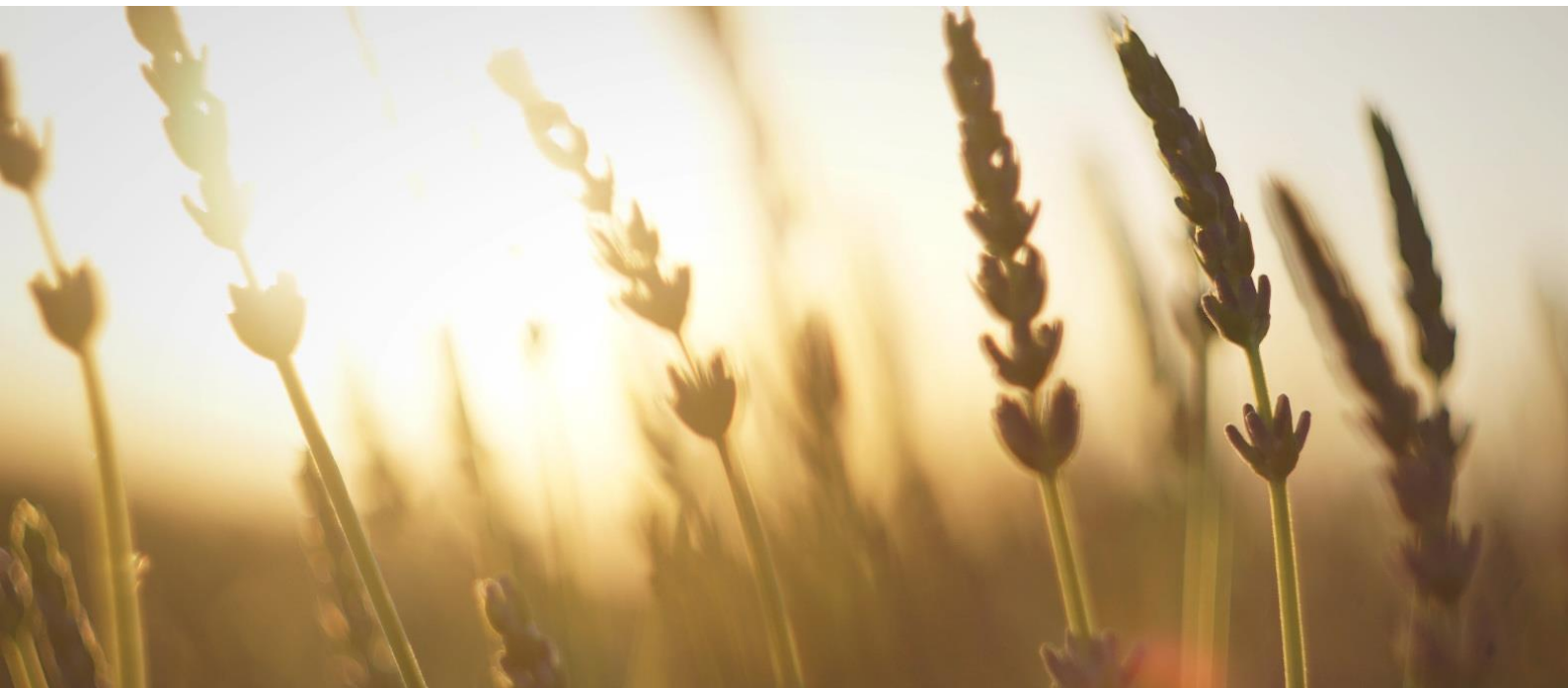


News Review



Issue Seventy-Five

June 2018

Each month we review the latest news and select key announcements and commentary from across the biobased chemicals and materials sector.

Contents

Contents.....	2
Foreword.....	3
Markets.....	4
Research & Development.....	7
Polymers	8
Chemicals	10
Consumer Products.....	11
Patents.....	14
Events.....	15
Price Information.....	18

Foreword

Welcome to June's issue of NNFCC's Biobased Products News Review.

We've discussed in the past that one of the most important factors that boosts the development and success of biobased products is public engagement. As such, when opportunities arise for biobased products to be showcased in very high-profile, we always take an interest. Late last year it was announced that the official match ball at this summer's football world cup would be made from biobased synthetic rubber, which had been chosen not because it was biobased, but for its superior performance, which was an excellent demonstration that biobased products aren't necessarily just like-for-like equivalents, but can offer better alternatives to their fossil-based counterparts. This month there comes another story showcasing how football can be used to highlight sustainability (even if it involves this particular author swallowing his own club loyalty...). Premier League team Manchester United have announced that their third kit for the upcoming season will be made from recycled plastic. They are not the first team to do this, with similar kits having been produced for European giants Real Madrid and Bayern Munich, but with Manchester United having more global shirt sales than any other team, this presents a fantastic opportunity to raise awareness of the opportunities for plastic sustainability, which go hand-in-hand with the biobased products sector.

There has been mixed news elsewhere, with some biobased product projects receiving large amounts of funding, such as dye company PILI, who have raised \$3million to fund their continued development of biobased dyes and pigments, and Jellagen, who have raised almost £4million to continue manufacturing collagen produced from jellyfish. This collagen has multiple medical applications, and so it is encouraging that this technology continues to develop. However, it has not all been plain sailing, with biobased chemical companies BioAmber and Verdezyne both feeling the pressure this month. BioAmber has filed a petition for relief, hoping to raise emergency funds to keep the business afloat. Verdezyne, however, has had to completely cease operations, despite its first commercial facility being almost complete, due to its chief investor pulling out of the project. These latter two stories highlight that it is still a competitive world for biobased developers, and that surviving in a difficult market is a challenge, particularly for smaller businesses. NNFCC is a major partner in the BioBase4SME project, which aims to support SMEs with their business development, enabling them to avoid crashing out at early hurdles. For more information, please contact NNFCC.

Read on for the latest news.

Markets

Metsä launches new company for textile innovation



Pixabay

Metsä Group has established a new company to develop wood-based products. Metsä Spring company starts by taking responsibility of the textile technology developed by Metsä Fibre.

The company has already started to plan a demonstration mill with an annual capacity of 500 tons in connection with the Äänekoski bioproducts mill. The final investment decision should be made within this year.

Click [here](#) for more information.

Biotech dye company raises \$3m in funding

Biotech dye producer PILI has announced it has closed a financing round of €2.5 million (\$3M) to accelerate its development.

PILI is the most advanced company in the production of biotech dyes and pigments using proprietary enzymatic technology. This funding allows the company to strengthen its technological lead and fermentation processes to produce high-performance biobased dyes and pigments and thereby reduce the environmental impact of chemistry, particularly used in textile.

The textile industry – a major consumer of fossil-derived chemicals, especially for dyeing operations – is increasingly interested in the biotech sector, whose recent progresses in synthetic biology have boosted its potential to provide clean and competitive solutions. In this context, PILI technology has attracted a lot of interest from many brands and industry players. Natural molecules such as indigo or carmine have been used for centuries in textile dyeing before being outperformed by petrochemical products in the mid-1850s. Plant-based production nowadays could not meet the industry's need in terms of cultivation surfaces. Microbial fermentation could allow the sector to reconnect with natural colours production. Higher productivity, lower impact and better scalability allow the sector to shift towards the use of natural dyeing materials without losing performance nor raising dyeing costs. Although the textile industry is the main focus of PILI's developments, other applications such as plastics, coatings, or inks will also benefit from PILI's technology in the near future.

Click [here](#) for more information.

Stora Enso launches Green Bond framework



Stora Enso

Stora Enso is integrating its sustainability agenda into funding and financial services to increase transparency and to highlight the positive environmental impact of its business.

Stora Enso has launched its Green Bond Framework as part of its Sustainable Finance approach. The ambition is to offer a loan-format to support sustainability-focused fixed income investors and to report the direct environmental impacts of some of its investments and business activities. The Group will use this bond format to complement its other funding sources.

Stora Enso's strategy on Sustainable Finance is a natural part of its overall agenda on sustainability and an integral part of its focus on being the world's leading renewable materials company. Stora Enso's goal is to work with funding partners for whom sustainability is a key part of their lending agenda.

Stora Enso's aim is to have all its suppliers, including those for financial services join the Stora Enso Supplier Code of Conduct. We see this as generating competitive advantage and thus prefer to partner with banks and financial service providers that make sustainability a leading issue in their respective eco-systems.

Click [here](#) for more information.

Ontario invests in biorefinery plant

Ontario is partnering with Comet Biorefining to create a new production plant in Sarnia for high-quality, sustainable ingredients that will help to directly create 82 new jobs and 158 new indirect jobs, including those in harvesting, construction, farming and manufacturing.

Comet Biorefining produces sustainable, high-quality ingredients for the food and beverage, animal nutrition and biomaterials markets. The company's proprietary ingredient technology allows for the conversion of agricultural residues, such as wheat straw, corn stover and wood products, into high purity ingredients.

The investment through Ontario's Jobs and Prosperity Fund will help Comet Biorefining create a new commercial scale facility to grow the agri-based value chain and benefit local farmers by using residues from Ontario's farming community, grow the emerging biochemical bioproduct ecosystem in Sarnia, while further establishing Ontario as a global player in the bioeconomy, and help meet the growing world demand for bio-based products.

Ontario is investing up to \$8 million in Comet Biorefining's \$79.8 million bio-based ingredient project through its Jobs and Prosperity Fund - Food and Beverage Growth Fund. The investment will help to establish the world's first commercial-scale bio-based ingredient refinery in Ontario. The project also supports the transition to a low-carbon economy.

Click [here](#) for more information.

BioAmber files petition for relief

BioAmber Inc. has announced that it filed a voluntary petition for relief under chapter 11 of the United States Bankruptcy Code and that its two Canadian subsidiaries, BioAmber Sarnia Inc. and BioAmber Canada Inc., filed a Notice of Intention to make a proposal under the Bankruptcy and Insolvency Act (Canada), with a view to strengthening the company's financial health and solidifying its long-term business prospects.

BioAmber believes filing these procedures is the best way to protect all stakeholders and will best facilitate its efforts to renegotiate its debt and raise the funds needed to continue its operations. The filing of these procedures has the effect of imposing an automatic stay of proceedings that will protect the company, its Canadian subsidiaries and their assets from the claims of creditors while the company pursues its restructuring efforts.

There can be no guarantee that the company will be successful in securing further financing or achieving its restructuring objectives. Failure by the company to achieve its financing and restructuring goals will likely result in the company and/or its subsidiaries being forced to cease operations and liquidate its assets.

Click [here](#) for more information.

Investor withdrawal forces Verdezyne to cease operations



Verdezyne

Verdezyne is winding down as a company, and ceasing operations.

Despite the fact that Verdezyne's planned first commercial facility dubbed "VerdePalm" in Johor, Malaysia, is almost 85-90% complete, it seems its investor, Sime Darby, decided to pull out and decided not to participate anymore on the project. This has forced a decision by Verdezyne's remaining investors to wind the company down.

Click [here](#) for more information.

Research & Development

Funding for jellyfish-derived collagen



Wikimedia Commons

Cardiff marine biotechnologies business Jellagen is to step up sales of its next-generation jellyfish collagen products after attracting £3.8 million from investors.

The company - which is the first commercial manufacturer of jellyfish collagen for cell culture and medical applications including wound care and regenerative medicine - has attracted funding from Newable Private Investing, Development Bank of Wales and angel investors.

It will use the investment to develop its products and grow sales. As a result, it expects to double in size from 6 employees to 12.

Last year it opened a manufacturing plant for extracting high-purity collagen from jellyfish. It also achieved an ISO13485:2016 quality standard for manufacture of medical grade collagen derived from jellyfish.

Click [here](#) for more information.

New agreement to produce algal starch technology for biobased products

Symphony Environmental Technologies Plc, a global specialist in products and technologies that "make plastic smarter", has announced that it has signed a collaboration agreement and commitment to a strategic investment with Eranova SAS, a company registered in France.

Eranova has developed a unique technology and process which extracts starch from algae for use with other materials. The starch can be combined with other polymers to produce compounded resins which are compostable and biodegradable. These can be used to manufacture a wide range of finished products. In addition, the Technology can be developed to produce biofuel, biopolymers, proteins for food and animal feed stock, as well as by-products for the pharmaceutical and cosmetic industries. Eranova is the applicant for PCT patent WO 2017/0463656 A1 and the application has been registered in several territories.

The importance of the Technology is that it will be possible to manufacture polymers from natural raw materials without the need to use arable land and fresh-water resources normally used for growing food crops. There is also a synergy with Symphony's existing technologies to enhance the technical performance of polymers that will use the Technology.

Pre-industrial development is expected to start in the second half of 2018 and will consist of constructing long seawater tanks, called "raceways", where Eranova will optimise cultivation of algae for the production of the starch extract. The raceways constructed during this phase will represent 1/50 scale of a full commercial facility and will cover 1.2 hectares. This phase will also involve conversion of the resultant starch into bioplastic compounds.

Click [here](#) for more information.

Analysis of value chains for circular bioeconomy

Bio-products and bio-based value chains have been identified as one of the most promising pathways to attaining a resource-efficient circular economy. Such a “valorisation and value-addition” approach incorporates an intricate network of processes and actors, contributing to socio-economic growth, environmental benefits and technological advances. In the present age of limited time and funding models to achieve ambitious sustainable development targets, whilst mitigating climate change, a systematic approach employing two-tier multi-criteria decision analysis (MCDA) can be useful in supporting the identification of promising bio-based value chains, that are significant to the EU plans for the bio-economy. Their identification is followed by an elaborate mapping of their value chains to visualize/foresee the strengths, weaknesses, opportunities and challenges attributable to those bio-based value chains. To demonstrate this methodology, a systematic review of 12 bio-based value chains, prevalent in the EU, sourcing their starting material from biomass and bio-waste, has been undertaken. The selected value chains are mapped to visualize the linkages and interactions between the different stages, chain actors, employed conversion routes, product application and existing/potential end-of-life options. This approach will help chain-actors, particularly investors and policy-makers, understand the complexities of such multi-actor systems and make informed decisions.

Click [here](#) for more information.

Polymers

Biocomposites launched as an alternative to plastics

Stora Enso is launching its wood-based biocomposites, DuraSense™ by Stora Enso. This is another major step on the group’s journey to replacing fossil-based materials with renewable solutions. DuraSense is available to companies seeking high performance and a sustainable, bio-based alternative to plastics.

DuraSense enables the use of renewable fibres, such as wood, to substitute for a large portion of fossil-based plastic. The production of biocomposites began in 2018 at Stora Enso’s Hylte Mill in Sweden, following the EUR 12 million investment announced in 2017. At full production, the mill’s annual production capacity is 15 000 tonnes, which is the largest capacity in Europe dedicated to wood fibre composites.

The DuraSense product family is suitable for a wide range of applications from consumer goods to industrial applications. Typical applications include, for example, furniture, pallets, hand tools, automotive parts, beauty and lifestyle products, toys and items, such as kitchen utensils and bottle caps, among other uses.

The DuraSense granules are a combination of natural wood fibres, polymers and additives offering the mouldability of plastic with the sustainability and workability of wood. With DuraSense, it is also possible to combine fibres with recycled or bio-based polymers to further enhance environmental values. For example, DuraSense™ Eco100, which is one of the product grades and based on wood fibres and biopolymers, is a cost-competitive way to fully replace fossil-based plastics.

Click [here](#) for more information.

good natured to supply biobased plastic packaging



Pixabay

good natured Products Inc. has announced that it signed a 40-month agreement on to supply a US industry leader in thermoformed packaging. This agreement covers plant-based packaging solutions for both food and general merchandise markets.

The Company estimates the agreement to deliver US\$1 million in organic growth in the current year, with gross margins to be in a range of 30% to 32%. Pricing and gross margins vary based on annual volume estimates of up to 4 million pounds of plant-based packaging material production. Annual sales volumes are expected to vary based on demand for each packaging model and the timing of new package design launches in the market.

This commercial agreement provides further evidence of good natured® market share gains and execution towards its goal of becoming the leading plant-based product and packaging company in North America.

This news comes after good natured® recently announced that it had closed over \$5 million in new funding and achieved record sales for its financial year ended December 30, 2017.

Click [here](#) for more information.

Companies collaborate to work towards biobased plastics

Aquafil and Genomatica announce the formation of Project EFFECTIVE, a multi-company collaboration to produce more sustainable fibres and plastics for commercial use by using renewable feedstocks and bio-based technologies. With participation from 12 companies, including brands like H&M, Carvico, Vaude and Balsan, Project EFFECTIVE is one of the broadest industrial-driven efforts to reshape entire product value chains and drive economic growth.

One of the key objectives of Project EFFECTIVE is to develop a more sustainable nylon, made from bio-based caprolactam produced using renewable feedstocks. The nylon will be validated by brands to make apparel and carpet textiles.

An advantage of Project EFFECTIVE is the early involvement of major consumer brands, allowing them to contribute valuable customer- and industry-driven perspectives. This brand participation is expected to facilitate broader and faster adoption of sustainable technologies and products. Brands will better understand what monomers, polymers and sustainability initiatives are commercially available, enabling them to develop more effective plans with suppliers regarding bio-based ingredients and materials.

The initiative is funded in part through a grant from the Bio-Based Industries Joint Undertaking, a public/private partnership between the European Union's Horizon 2020 program and the Bio-based Industries Consortium. Aquafil and Genomatica's agreement announced in early 2018 will pave the way toward the industrial production of bio-based nylon.

Click [here](#) for more information.

Lawn fertiliser to come in Braskem's biobased packaging



Geograph

Braskem, the largest thermoplastic polyolefins producer in the Americas and the leading producer of biopolymers in the world, and Scotts Canada, Canada's leading marketer of branded consumer lawn and garden as well as hydroponic growing products, have announced the launch of the new Scotts® Turf Builder® with Root-Trients T product packaging that utilizes Braskem's I'm greenT polyethylene (PE) biopolymer. Scotts and Braskem partnered with Peel Plastic Products Ltd., to develop this new, more sustainable packaging.

Braskem's I'm greenT Polyethylene (PE) is a bio-based polymer made from ethanol, a renewable and sustainable resource produced from Brazilian sugarcane. I'm greenT PE retains the same properties, performance and application versatility of fossil fuel derived polyethylene, making it an ideal drop-in substitute for conventional oil-based polyethylene. Cultivation of sugarcane utilized in the production of I'm greenT PE captures carbon dioxide (CO₂) and releases oxygen (O₂), which means Braskem's bioplastic has a negative carbon footprint. From a cradle-to-gate life-cycle perspective, every ton of I'm greenT PE used in the production of packaging equates to 3.09 tons of CO₂ captured from the atmosphere.

With 40 years of experience in the lawn and garden market, Peel Plastics has developed extensive know-how in the segment's unique

packaging requirements and technologies. The Peel Plastics team worked hand in hand with Scotts and Braskem to design, develop and integrate the I'm greenT PE biopolymer into a new packaging platform that maintains all the performance characteristics required, while delivering a solution that is better for the earth.

Scotts® Turf Builder® with Root-Trients T in this more sustainable packaging is available in Canada initially - at major retailers such as Home Depot, Lowe's, Canadian Tire, Walmart, Rona, Home Hardware, Reno Depot and TSC, as well as range of independent lawn and garden centres.

Click [here](#) for more information.

Chemicals

First biobased solvent for dry-cleaning

A new bio-based alternative solution is now available for dry cleaners. Working with Green Biologics and their facility in Minnesota, Kreussler Inc. is now making dry cleaning solvent from feedstocks by about 500 family-owned farms in the heartland of America. Bio-derived and sustainable are words never before applied to the dry-cleaning industry until now. SOLVONK4 offers one single ultrapure solvent that cleans better than Perc without any of the environmental or health-related concerns.

Kreussler Inc have partnered with Green Biologics, Inc. to produce bio-based SYSTEMK4. Green Biologics will use their patented fermentation process to take locally-grown feedstocks from family-owned American farms and convert it through a low-energy, minimal waste process into the bio-based n-butanol used to produce SOLVONK4, the main solvent in the SYSTEMK4 dry cleaning process. SOLVONK4 will now be

sustainable and bio-based while retaining the award-winning cleaning attributes of the original formula.

Worldwide patented SOLVONK4 is the first and only bio-based solvent in the dry cleaning industry. Kreussler is actively applying for the USDA BioPreferred® certification. As defined by the USDA, bio-based products are derived from plants and other renewable agricultural, marine, and forestry materials and provide an alternative to conventional petroleum-derived products. Bio-based products include diverse categories such as lubricants, cleaning products, inks, fertilizers, and bioplastics.

Click [here](#) for more information.

Biobased butylene glycol to be used in botanical extracts

Bio-Botanica® Inc. has announced it has partnered with Genomatica to create a new line of botanical extracts using a naturally sourced, sustainably produced butylene glycol. These products, manufactured by Bio-Botanica Inc., feature Genomatica's proprietary ingredient, Brontide™. The new extracts will be showcased at NYSCC Suppliers' Day 2018.

Brontide is a naturally derived, highly pure butylene glycol derived from a sustainable and renewable sugar fermentation process. It can be used in a number of personal care applications, including skin care, as a humectant, preservative booster, solubilizer or stabilizer.

Brontide is ideal for personal care manufacturers looking to develop new natural products or reformulate existing products with a natural alternative to petroleum-based butylene glycol. The ingredient integrates seamlessly into personal care formulations while delivering superior quality.

Click [here](#) for more information.

Consumer Products

Manchester United launches kit made from recycled plastic

Whilst their rivals from across the city are celebrating a record points Premier League triumph, Manchester United have at least taken a lead in sustainability. Their third kit for the 2018/19 season has been unveiled, and as well as being a rather fetching navy blue (a tribute to a 1968 European Cup win), it is also made from upcycled plastic waste intercepted from shorelines, beaches and coastal communities. The kit is made by German sportswear giants adidas, with the plastic from Parley Ocean Plastic in partnership with Parley for the Oceans. As well as creating awareness of the issue of plastic in our oceans, adidas and Parley also create footwear and clothing from the same waste.

Manchester United aren't the first club to use football shirts made from ocean plastic waste. In 2016 adidas and Parley for the Oceans launched kits for sporting giants Real Madrid and Bayern Munich. These shirts were made of plastic waste recovered from clean-up operations in the Maldives, while the club crests and shirt sponsor logos are printed with water-based eco-friendly prints.

Whilst Nike have also made kits using waste plastic, for among others, the U.S. Women's National Team to wear at the 2015 World Cup, with each shirt made using an average of 18 recycled bottles.

Click [here](#) for more information.

Stora Enso partners with Sulapac for biodegradable plastics

Stora Enso and Sulapac have signed a joint development agreement to combat the global problem of plastic waste by accelerating the use of fully renewable, recyclable and biodegradable materials in packaging.

Through the joint development agreement, Stora Enso will licence Sulapac's materials and technology, and begin the development of fully renewable caps and closures for liquid packages. Other areas for joint development work include food packages and packages for consumer electronics.

Click [here](#) for more information.

Flo partners with Natureworks to release compostable coffee capsules

Flo, a major European food packaging producer, has introduced Gea, an industrially compostable coffee capsule created in partnership with NatureWorks, a leading company in the production of functional biopolymers. Flo's Gea capsule is the result of a two-year joint development process that created a compostable capsule aimed to deliver on the high-performance requirements of the most demanding roasters.

Gea is entirely composed of Ingeo™ PLA, which is a renewably sourced polymer that is certified for industrial composting systems according to global standards such as EN-13432 (EU) and ASTM D6400-04 (USA). The new capsule technology platform is fully approved for food contact and is now in final testing by TÜV Austria and the Italian Composting and Biogas Association (CIC) for compostability certification.

Compared to compostable capsules currently on the market, the new Gea capsules address market

requests for material ageing stability in an industrially compostable format.

Gea capsules also are an excellent barrier to oxygen, which protects the organoleptic qualities of the packaged coffee. The taste and aroma of the coffee are preserved, satisfying the needs of coffee roasters while ensuring an enhanced brewing experience for consumers.

Initially targeting the demanding requirements of high pressure, single serve coffee systems, the Gea capsules have successfully passed the industrialization and filling tests at Flo's major partner coffee roasters and will be available on the market starting in October 2018.

Click [here](#) for more information.



Pixabay

L'Oréal to introduce paper-based recyclable bottle

A division of L'Oréal USA, Seed Phytonutrients is demonstrating its commitment to sustainable packaging with a recycled, recyclable, compostable, paper-based pump bottle that was designed for use in the shower. The beauty brand, which launched on April 22 (Earth Day), 2018, sells skin- and hair-care products.

L'Oréal USA, in partnership with Ecologic Brands, designed the unusual personal care packaging, which is a next-gen take on Ecologic's original pouch-in-a-paper-shell concept.

Seed Phytonutrients' 250-milliliter bottle differs from that older package structure in some important ways. The external shell is still 100% paper-based and is recyclable and compostable. But the two halves of the shell are no longer glued together. Instead, a system of interlocking tabs binds the two halves mechanically, producing a stronger outer structure. The shell is made using corrugated board recycled from a L'Oréal USA distribution centre.

Rather than incorporating a film pouch, Seed Phytonutrients' package uses a lightweight, thin-walled, blow-moulded liner. This rigid monopolymer liner is made using 80% post-consumer recycled high-density polyethylene (HDPE) and is recyclable. As the consumer dispenses the product, the liner collapses; the airless package enables almost full evacuation of the product.

A noteworthy functional improvement in the package is water-resistance, achieved by mixing proprietary minerals with the paper fibres and by using heat and pressure to bind the fibres during production of the shells.

Click [here](#) for more information.

Tetra Pak to develop paper straws

Tetra Pak aims to launch a paper straw that is suitable for its portion-sized carton packages before the end of the year, as part of a broader programme to help address the issue of plastic straw waste.

Straws play an integral functional role on portion packages, but if not disposed of properly, they then become part of the plastics waste problem. The company has been working to encourage consumers to push straws "back in the pack" once empty, so they can be collected along with the rest of the package. Now, work is under way to develop a paper straw that is suitable for use on its portion-size carton packages.

On average, Tetra Pak packages are about 75% paperboard; paper straws would be another important step towards the company's long-term ambition of offering a completely renewable portfolio.

Click [here](#) for more information.

Patents

Process for producing 1,2-propanediol from glycerol

A process is described for producing biobased 1,2-propanediol, comprising reacting a glycerol-containing feed containing less than 5 weight percent of water with hydrogen in the presence of a catalyst, to partially convert glycerol in the glycerol containing feed to a crude reaction product mixture including 1,2-propanediol, removing 10 water from the crude reaction product mixture, recovering a portion but not all of the 1,2-propanediol from the crude reaction product mixture, and recycling the remainder of the 1,2-propanediol with unconverted glycerol and combining these with makeup glycerol to provide additional of the essentially anhydrous, glycerol-containing feed.

Click [here](#) for more information.

Methods for production of aromatic dicarboxylic acids and derivatives thereof

Provided are methods for the production of isophthalic acid (IP A) and derivatives thereof. The methods are based on the addition of beta propiolactone to furfural or a derivative thereof. Provided are cost effective routes to biobased IP A and derivatives thereof, including terephthalic acid.

Click [here](#) for more information.

Biobased carbodiimides method for their manufacture and application thereof

Biobased carbodiimide obtained by reacting at least one carbodiimide (C) and hydrogen-acidic compounds having a functionality of greater than 1 and/or their 2-24C-hydroxycarboxylic acid ester isolated or produced from renewable materials, is new.

Click [here](#) for more information.

Polyhydroxyalkanoate copolymer compositions and methods of making the same

A polyhydroxyalkanoate copolymer composition is provided. The composition comprises a plurality of polyhydroxyalkanoate copolymer molecules. The polyhydroxyalkanoate copolymer molecules (i) comprise 3-hydroxybutyrate monomers and 4-hydroxybutyrate monomers, (ii) have a monomeric molar percentage of 4-hydroxybutyrate monomers of 23.5 to 75%, and (iii) have a biobased content of $\geq 80\%$. Also provided is a method of making a polyhydroxyalkanoate copolymer composition. The method comprises culturing an organism in the presence of one or more carbon raw materials under conditions under which (a) the one or more carbon raw materials are converted to 3-hydroxybutyryl-CoA and 4-hydroxybutyryl-CoA and (b) the 3-hydroxybutyryl-CoA and the 4-hydroxybutyryl-CoA are polymerized to form the polyhydroxyalkanoate copolymer molecules, thereby forming the composition. The organism has been genetically engineered to comprise particular enzymatic activities, and to not comprise other particular enzymatic activities. The one or more carbon raw materials, taken together, have a biobased content of $\geq 80\%$.

Click [here](#) for more information.

Method for preparing 1,2-propylene glycol and normal propyl alcohol by using biologic glycerol

The invention discloses a method for preparing 1,2-propylene glycol and normal propyl alcohol by using biologic glycerol. The method comprises the following steps: with biologic glycerol of which the purity is more than or equal to 95% and hydrogen as main raw materials, by adopting a continuous reaction mode, first vaporizing glycerol, followed by atomizing with pre-heated hydrogen, and then carrying out a catalytic hydrogenolysis reaction on a fixed bed, wherein the reaction conditions are as follows: the temperature is 150-250 DEG C, the pressure is 0.8-2.5MPa, the molar ratio of hydrogen to glycerol is (10-50):1, and mass space velocity is 0.2-1.0/h, and while the materials are vaporized, the vaporized materials are allowed to flow through a fixed reaction bed loaded with a hydrogenolysis catalyst to be subjected to a catalytic hydrogenolysis reaction; the hydrogenolysis catalyst is a copper-based catalyst, comprising the following components according to molar ratio: 10-20% of Cu, 30-40% of Al, 30-40% of Si, and 1-10% of Zr and rare earth. The method for preparing 1,2-propylene glycol and normal propyl alcohol by using biologic glycerol disclosed by the invention has the advantages of few equipment investment, low production energy consumption and low product cost.

Click [here](#) for more information.

Events

1st PHA Platform World Congress Köln, 4th-5th September 2018

The PHA-platform is made up of a large variety of bioplastics raw materials made from many different renewable resources. Depending on the type of PHA, they can be used for applications in films and rigid packaging, biomedical applications, automotive, consumer electronics, appliances, toys, glues, adhesives, paints, coatings, fibers for woven and non-woven and inks. So PHAs cover a broad range of properties and applications.

This congress will address the progress, challenges and market opportunities for the formation of this new polymer platform in the world. Every step in the value chain will be addressed. Raw materials, polymer manufacturing, compounding, polymer processing, applications, opportunities and after-use or end-of-life options will be discussed by parties active in each of these areas. Progress in underlying technology challenges will also be addressed.

Click [here](#) for more information.

International conference on bioinspired and biobased chemistry & materials Nice, 14th-17th October 2018

The scientific and international N.I.C.E (Nature Inspires Chemistry Engineers) Conferences are organized with the objective to share new developments in the growing field of bioinspired chemistry and materials and to understand new challenges that are being faced in this field of research.

The NICE conference encompasses chemistry, biology and physics and gives a multi-disciplinary overview of biomimetic approaches to engineering new materials and systems.

Click [here](#) for more information.

EFIB 2018 Toulouse, 16th-18th October 2018

Join over 650 bio-based leaders in 2018 for the 11th edition of EFIB in Toulouse, France, on the 16th, 17th and 18th of October.

Click [here](#) for more information.

International Conference on Green Chemistry and Technology Edinburgh, 12th-13th November 2018

EuroSciCon invites all the participants from all over the world to attend "21st Edition of International Conference on Green Chemistry and Technology" during November 12-13, 2018 at Edinburgh, Scotland which includes prompt keynote presentations, Oral talks, Poster presentations, Workshops and Exhibitions.

Green Chemistry and Technology 2018 is a global overview the Theme: "Endorsing the Importance of Sustainable World by Academic and Industrial Forum: Driving Waste towards Zero" is designed for professionals at all levels and career phases of the Chemical industry, Pharmaceutical industry and Petroleum industry, who want to improve their understanding of what will drive and shape the future of the market. This will include senior executives, sales and marketing personnel, strategic planners, who will benefit from a broad overview of the Chemical, Pharmaceutical and petroleum industry. The strength of the Conference is that the participants tend to include all phases of the value chain as well as individuals from a wide variety of sector and countries. This experience helps the conference to be an interactive forum and encourages a strong level of dialogue and discussion, thus maximising the benefits of attendance. This conference surely provides better information and insight into the development of the world Chemical industry, which in turn has enabled attendees to make better and more profitable decisions.

Click [here](#) for more information.

European bioplastics conference Berlin, 4th-5th December 2018

The European Bioplastics Conference is the leading business and discussion forum for the bioplastics sector in Europe and worldwide. As the major industry association in this field, the hosts at European Bioplastics are committed to representing the interests of stakeholders along the entire value chain. The diversity of the delegation – 330 strong in 2017 and expected to grow – reflects that, and the trend towards a pan-industry gathering is set to continue as the event embraces the inclusion of political and other non-private sector actors. With more and more brands and manufacturers waking up to the potential of bioplastics, and with policy makers increasingly streamlining their efforts to install frameworks that benefit the growth of sustainable bio-industries, this is the time to put bioplastics high up on the agenda of a bio-based circular economy in Europe and beyond.

Click [here](#) for more information.

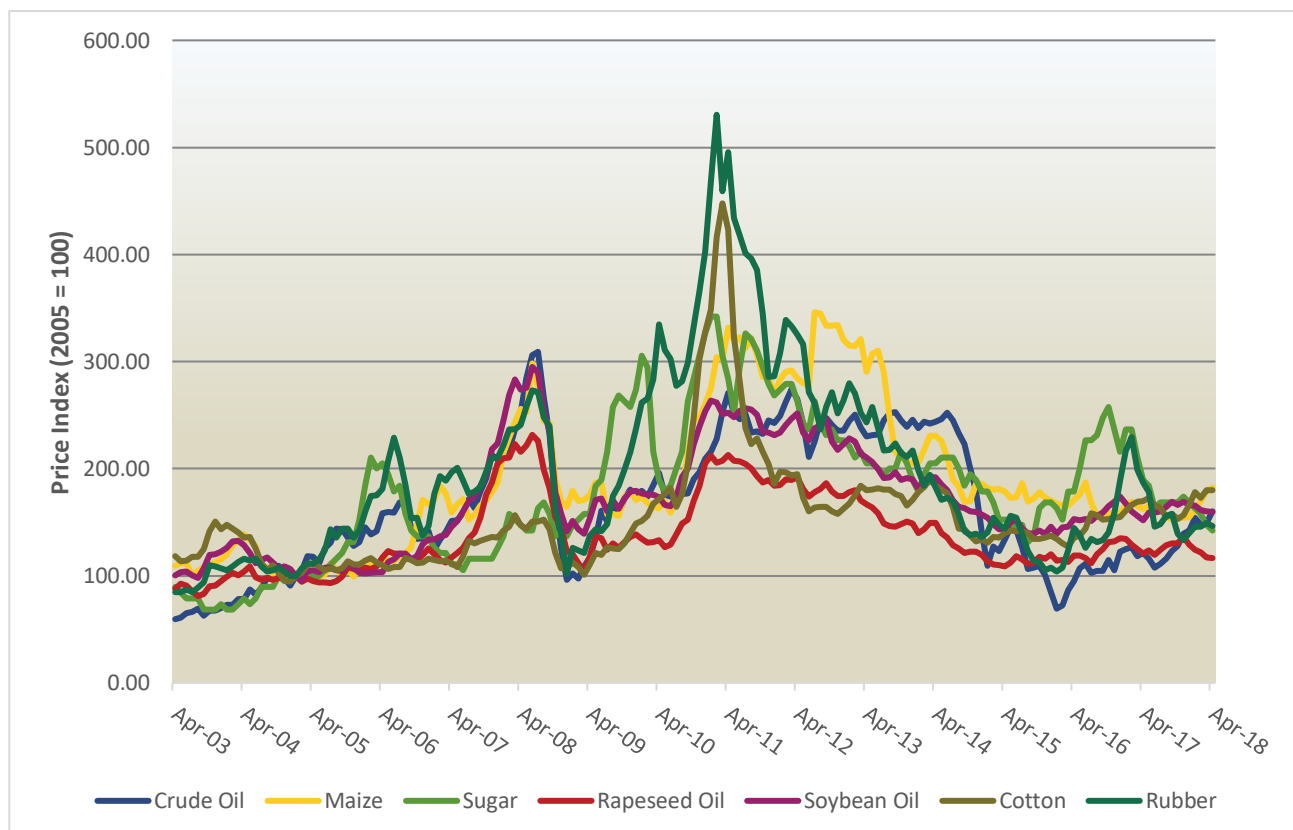
Price Information

Spot Prices of feedstocks as of today and five years ago, and percentile price change.

Item	Price, US\$ (May 13)	Price, US\$ (Apr 18)	Price Change
Crude oil (petroleum, barrel)	99.37	68.79	-31%
Maize (corn, metric ton)	295.54	175.6	-41%
Sugar (kilogram)	0.39	0.27	-31%
Rapeseed oil (metric ton)	1,116.00	794.00	-29%
Soybean oil (metric ton)	1,073.00	830.00	-23%
Cotton (kilogram)	2.04	2.03	0%
Rubber (kilogram)	3.04	1.73	-43%

All prices from World Bank data.

Raw materials 15-year Price Indices



All prices from World Bank data, for details on index methodology, please contact NNFFCC.

Credits and Disclaimer

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