Biofore

Products for future consumers
We are the industry leader in the global Dow Jones Sustainability Index.

Creating value responsibly

Being recognised by the world’s leading sustainability raters is important. But what is more important is knowing we are making a positive societal impact.

For us responsibility is about values, commitments and – above all – actions. From responsible sourcing to the end of the product life cycle – and beyond. No compromises, no exceptions.

Join us in creating value by seizing the limitless opportunities of the bioeconomy. UPM – the Biofore Company.

www.upm.com
Did you know, that UPM submits some 350 patent applications annually across the world? And that last year, the company was granted more patents than any other company in Finland; over 50?

In this issue, among other fascinating topics we explore various breakthrough innovations that open up new business opportunities and have resulted from our Biofore strategy.

Great examples are found among our new products as well as the technologies we have created. Wood-based biofuels and chemicals. Bio-composites. New lignin-based adhesive technology used in plywood manufacturing. The substitution of oil-based components in adhesive resin with a lignin-based technology. Chemical industry innovation award winning cellulose-based hydrogel that promotes cell growth. The list goes on.

As stated by the head of technology *Jyrki Ovaska*: “Developing new products is a journey of discovery. During the long journey, new routes keep opening up for further development of the materials for yet new applications…”

The end goal of these explorations is crystallised in the word of UPM’s redefined mission: “We create value by seizing the limitless potential of bioeconomy.”

These are the opportunities we seize with enthusiasm, every single day.

*Elisa Nilsson*
Vice President, Brand and Communications, UPM
The seedlings raised in Joroinen are prime genetic stock forming the foundation of Finland’s thriving forests.

For Frank Tang and Janet Zhang, product safety and practical design are key when buying children’s furniture.

Buses operating within the Helsinki area, Finland, will use only renewable fuels by the year 2020. This will significantly improve air quality.

Environmentally sound pulp-based products help to win the war on disease.

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Purpose

We create value by seizing the limitless potential of bioeconomy.
Purpose

Vision

We lead the forest-based bioindustry into a sustainable, innovation-driven, and exciting future.

The competence, integrity and drive of our people make us unique.
Investment agreement for a possible new pulp mill in Uruguay

In November, UPM and the Government of Uruguay signed an investment agreement, which outlines the local prerequisites for a potential pulp mill investment. The site of the mill would be close to the city of Paso de los Toros, in central Uruguay. The agreement details the roles, commitments and timeline for both parties as well as the relevant items to be agreed prior to the final investment decision.

“Robust infrastructure is elemental for industrial development. The Government of Uruguay is stating their serious intent with this agreement and timeline. The agreement sets the foundation for UPM’s planning of a state-of-the-art pulp mill investment,” says Jaakko Sarantola, UPM’s Senior Vice President, Uruguay Development.

UPM INVESTS IN FINLAND AND RUSSIA

UPM is looking to strengthen its position as Europe’s leading plywood producer by expanding its Chudovo plywood mill in Russia. The EUR 50 million investment will expand both the mill’s production capacity and product range. A new biothermal power plant will be built at the mill site, reducing the need for fossil fuels. The project is scheduled for completion by the end of 2019.

UPM will further enhance the efficiency of its Kaukas pulp mill in Lappeenranta, Finland, by investing EUR 30 million in the renewal of selected stages of the production process. The demand for pulp continues to grow, particularly in personal care products, packaging and other consumer products. The modernised sections of the mill will be operational in spring 2018.

New German biorefinery in the pipeline

UPM is planning to construct an industrial-scale biorefinery at the Frankfurt-Höchst industrial park in Germany. The biorefinery’s annual production capacity would be 150,000 tonnes of bio-monoethylene glycol (bMEG), bio-monopropylene glycol (bMPG) and lignin produced from wood-based raw material and sourced from sustainably managed deciduous forests in Central Europe.

Bio-monoethylene glycol can be used in textiles, bottles, packaging materials and de-icing fluids.

Uses for bio-monopropylene glycol include pharmaceutical products, cosmetics and detergents. Lignin is a component in resins that are used as binders in wood-based products and in plastics, foams and coating materials.

The commercial and technical preliminary planning phase is estimated to take approximately 12 months. The project is based on more than five years of technological R&D work and piloting.

You can read Biofore Magazine and other interesting stories at www.upmbiofore.com.
Global partnership with FSC

UPM and FSC® (Forest Stewardship Council) have signed a strategic global partnership agreement. Its aim is to expand FSC forest certification using methods that benefit forest owners and to increase the supply of FSC certified wood.

UPM has collaborated closely with FSC for several years, working to improve the certification system to suit Finland’s private forest ownership system. UPM will carry on this work through the strategic partnership.

UPM Biofuels receives world’s first RSB certificate for wood-based fuels

UPM Biofuels has received an RSB certificate recognising the sustainability of UPM BioVerno diesel and naphtha as well as turpentine and pitch, the sidestreams from the production process.

The RSB (Roundtable on Sustainable Biomaterials) verifies the raw material supply chain as well as the sustainability and reliability of production. RSB is one of the voluntary systems approved by the European Commission to demonstrate that biofuels meet the sustainability requirements set in the EU Renewable Energy Directive. These requirements include greenhouse gas emissions, biodiversity, human rights and social and environmental responsibility throughout the whole production chain.

EXTERNAL RECOGNITION FOR RESPONSIBILITY

UPM has been ranked as the top company in the forest and paper industry sector in the Dow Jones European and World Sustainability Indices (DJSI) for 2017-2018. This is the fifth time UPM has received this recognition. The index evaluates companies’ actions to curb climate change and their practices related to supply chain, employees, governance and risk management.

UPM has also been included in the CDP water and forest A lists. CDP’s global A list includes companies that have demonstrated leadership in minimizing environmental risks through their actions during the past year. UPM is one of the four companies included in both the water and forest A list.

MEMBER OF
Dow Jones Sustainability Indices
In Collaboration with RebecaSAM

CDP
ALIST
2017
WATER

CDP
ALIST
2017
FORESTS
In 2030, as envisioned by futurologists, people will travel in self-driving cars, gyrocopters will handle consumer home deliveries, and sensors integrated into clothing will monitor our well-being. Digital and AI-based technology has developed so rapidly that the future is now difficult to predict even within a timeframe as brief as a few years.

Senior industry expert Peter Berg from McKinsey & Company predicts that consumers in 2030 will have access to a considerable number of products and services that no one today can even imagine.

“The fact that just 15 years ago we did not have iPhones or Facebook demonstrates the pace of development quite well.”

An expert in global consumer trends in paper and forest products, Berg points out that the general direction is nevertheless clear.

“As the world economy shifts its centre of gravity to Asia, so will consumption.”

**The rising middle class**

The main driver for global consumption in the coming years will be the growing and increasingly wealthy middle class of Asia and other developing...
“Biomass and biomaterials will play an increasing role in the circular economy and the innovations related to it.”
– Peter Berg, McKinsey

The middle class is set to grow over the next few years, especially in countries such as China, India, Indonesia and Vietnam. Increasing wealth will be the main driver for global consumption.

Meanwhile the population is aging rapidly, particularly in industrialised countries. The proportion of senior citizens will also grow in the developing markets in coming decades.

According to the UN, there are approximately one billion people over 60 in the world today, a number expected to rise to 2.1 billion by 2050.

Tomorrow’s changing consumers
The needs and purchasing habits of consumers vary by country, but Berg sees many common denominators in consumer trends.

“Consumers all around the world are looking for easier, effortless ways of buying. They are also looking for products that are tailored to their needs.”

According to Berg, digitalization and technological advancement will help meet the changing needs of consumers. To give a practical example, this will mean that a growing percentage of products and services will continue to be purchased through electronic channels.

Another global consumption trend

economies. Their number is growing in China, but also in India, Indonesia and Vietnam.

According to the US-based Brookings Institution, the global middle class population numbered 3 billion in 2015. The figure is expected to grow to 5.4 billion by 2030.

Most of this growth will come from Asia, where two thirds of the world’s middle class will live in 2030.

The Brookings definition of the global middle class is any household with a per capita income of 11–110 US dollars per person per day.

Urbanization drives consumption
Berg notes that megatrends like urbanisation and population growth have a major impact on consumption.

The UN estimates that the world’s population will increase by one billion by 2030, reaching a total of 8.6 billion people.

“By that time, 60% of the world’s population will be living in cities,” says Berg.
is that people no longer necessarily want to own the things that they use.

“In addition to car sharing, the sharing of other products and services will become more commonplace over the coming years.”

More tissues and packaging
Changes in the consumer marketplace will also have significant effects on the demand for forest industry products, says Berg.

“As consumers spend more time using digital channels, the media and advertising industries’ demand for printing paper will continue to decrease. On the other hand, the growing purchasing power of the middle class, along with urbanization, will increase demand for fibre-based products.”

These include tissue-based hygiene products like toilet paper, paper towels and paper tissues.

The demand for paperboard and other packaging materials will also grow. This trend is influenced by changing consumption habits in developing economies. Instead of the traditional street market, consumers are increasingly looking to buy packaged groceries from supermarkets.

The increasing demand for packaging materials is also being driven by electronic commerce, as goods bought online must be delivered quickly and safely.

Berg points out that smart technology is rapidly making its way into packaging materials as well.

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“Consumers demand speedy home delivery for their orders. They also want to track the order’s progress from the warehouse to their doorstep.”

Efficient logistics requires smart packaging and labels, with embedded sensors providing vital shipping information that can be analysed and utilised using digital systems.

“New technology will also improve food safety. For example, a sensor on a milk carton can indicate if the product was kept cool throughout the transport chain.”

Bioeconomy answers global challenges
According to Berg, the Earth’s limited capacity will have a substantial impact on consumption trends over the coming years. As the population and consumption grow, the use of raw materials and the recycling of used materials must be enhanced.

More renewable raw materials will also have to be used in production to replace fossil materials and other non-renewable natural resources.

“Biomass and biomaterials will play an increasing role in the circular economy and the innovations related to it,” says Berg.

He explains that wood-based materials will be more commonly used in different areas such as construction. In general, urbanization will require more sustainable construction practices. And, as products and processes evolve, wood as a construction material offers advantages, in cost, speed of construction, and sustainability.

“And as research and product development continue, it is also likely that biochemicals and other materials manufactured from wood-based raw materials can viably compete with products such as oil-based plastics in many areas.”
Sustainable and safe products for everyday use

**LABEL MATERIALS**
for food packaging, drinks bottles and for communicating information

**SPECIALTY PAPERS**
for food packaging

**WOOD MATERIALS**
for construction and design features
PULP-BASED MATERIALS
for packaging, transport, storage, and hygiene products

ELECTRICITY
for lighting and heating

PUBLICATION PAPERS
for reading and advertising

OFFICE PAPERS
for printing

WOOD MATERIALS
for furniture and the home

LABELS
for food products
Helping to win the war on disease

The evolution of medical care through the ages is a fascinating one. For instance, over 2000 years ago, vinegar and thyme oil were used to treat wounds thanks to their antiseptic properties. It wasn’t until the 1800s that the link between poor hygiene and infectious diseases came to light – a discovery that led to a rapid revamp of health care with the use of antiseptics and proper sterilization procedures coming to the fore. However, they did not eliminate the risk of diseases.

The threat of infections and ‘super bugs’ have health-care facilities looking for ways and means to control infections while rationalizing costs. Environmentally sound pulp-based materials are helping them do just that.
“On any given day, approximately one in 25 patients in the US has at least one infection contracted during the course of their hospital care, demonstrating the need for improved infection control in US healthcare facilities,” states the US Center for Disease Control (CDC) in its 2016 National and State Healthcare Associated Infections Progress report.

As medical science evolves, so do diseases.

The rise of antibiotic-resistant ‘super bugs’ like MRSA has left health care facilities scrambling to strengthen their infection control processes. One of the ways in which the healthcare community is doing this is by moving away from reusable medical instruments to single-use, disposable ones. And while materials made of synthetic polymers form the largest portion of this market, the category of naturally-occurring bio-based products is growing significantly.

**Disposable materials on the rise**

Bio-based materials are already being used for a number of applications such as wound care management, incontinence management, surgeries and even for gowns and medical instrument wrapping. This is due to many reasons, including the excellent barrier abilities which prevent infection. The products are biocompatible and resistant to acids, alkalis and microorganisms. They are also breathable, which makes them ideal to be used in bandages and surgical dressing.

“The patient might find bio-based materials comfortable to use. Plus, the moisture control is better, and this has a positive impact on wound healing, while helping bandages last longer. As a result, health care providers are interested in using these products a lot more,” says Ali Harlin, research professor at the VTT Technical Research Centre in Finland.

**Reusable products entail risks**

Improperly cleaned reusable products can spread infections very easily, and in modern hospitals that see hundreds of patients every day, the likelihood of an epidemic breaking out is very high.

“A challenge with reusable alternatives is that since they are washed, reprocessed and used several times, it becomes difficult to ensure that the quality is consistently the same,” says Björn Carlzon, Global Franchise Director & Head of Marketing, Surgical solutions at Mölnlycke, a global provider of wound care and surgical solutions for healthcare professionals and patients.

Studies have shown that the methods of cleaning are not always thorough enough, and washer-disinfectors often fail to kill off all contaminants.

“The differences may not be visible to the naked eye, which increases the potential risk of contamination. With single-use alternatives, there is a fresh product every time, which makes quality...
control easier and contributes to reduced contamination risks,” Carlzon says.

It is not just hospitals and healthcare facilities that depend on single-use pulp-based products. They are very much a part of our day-to-day lives. For instance, good hand hygiene is a critical precaution in helping to fight infections at home and work. Rinsing hands with water is not enough – a thorough drying is needed to ensure that microbes are not spread around. Absorbent, single-use paper towels offer optimum hand and washroom hygiene. This is why tissue products made from pulp, such as hand towels, kitchen rolls and toilet paper, play a critical role in improving health and hygiene.

**Focusing on sustainability**

A report by Grand View Research expects the global medical disposable market to touch USD 330 billion by 2024. In the UK, moulded pulp products have been extensively tested and used by the National Health Service as part of their ‘Deep Clean’ project. The rate of infection control displayed by using these products has led to their adoption in other countries as well.

While the use of single-use products is clearly helping bring down infection rates, concerns have been raised about the impact of disposal. However, pulp is a wood-based, recyclable and biodegradable raw material, and technologies have been created to help reprocess pulp-based items into new products thereby reducing the amount of waste.

Since recycling is not an option in the case of hygiene and medical products, alternate solutions have to be found.

“There are different ways to take care of hospital waste. In many cases, it is burnt in thermal plants and the released energy can be re-used for purposes such as heating,” Carlzon explains.

“We are also actively minimizing the environmental impact related to our products. With procedure trays, for example, we can put all single-use materials required for a surgical procedure in one package, significantly reducing the packaging material and carbon footprint.”

As medical science continues to evolve, the scope for the use of environmentally sound bio-based products is getting vaster. While new technologies like surgical robots may grab headlines, the role of more commonplace materials like pulp cannot be understated in winning the war on disease.
In hospitals and health centres, adhesive labels are required for a host of purposes. For example, they are used for conveying information and product tracing. A variety of labels are also required for test tubes used in laboratories.

“To ensure patient safety, high standards have been set for labels used in healthcare,” says Markku Pietarinen, Manager, UPM Raflatac Business Segments & Pharma. “Labels have to withstand storage, chemical treatment and demanding applications in healthcare,” Pietarinen continues.

Identifiers for easy tracing
This autumn, UPM Raflatac launched a new range of RPMD products designed for labelling medical equipment and packaging. The variety of medical equipment in healthcare ranges from hip prostheses to injection pens.

“According to new regulations, medical equipment must have unique identifiers for tracing. UPM Raflatac’s labels meet these requirements,” Pietarinen states. “Labels can be applied directly onto the medical equipment and the protective sterilised package. They can also applied to blood bags used for blood donation.”

Tool against falsified medicines
Under the new EU directive on falsified medicinal products, all prescription medicine packages must have an anti-tampering mechanism to identify whether the package has been opened illegally in the distribution chain. The medicine package cannot be opened without breaking the security seal label, which makes it more difficult to deliver falsified medicines to consumers through legal channels.

“We were the first to launch products that help pharmaceutical companies meet the requirements of the new directive,” says Pietarinen.
Tree nurseries look after seeds and seedlings like their own babies. Thriving genomes form the foundation of healthy forests.

On an autumn morning, we visit a sleepy tree nursery sprawled across 27 hectares of rural landscape in Eastern Finland. We are in Joroinen, an exceptionally warm microclimate for its geographical location. There are no swamps or bogs close by to cool the area, making the soil suitable for cultivation. As a former lake bed, the ground is soft and free of stones. Today, it is covered by a 27-hectare tree nursery.

This is the only tree nursery in Finland owned by a forestry company that exports hundreds of kilograms of seeds and millions of spruce, pine and birch seedlings every year. UPM supplies the world with over 50 million seedlings annually, including the production of eucalyptus in Uruguay.

Autumn is harvest time in Finland. In Joroinen, this means preparing the seedlings for winter. The employees are scattered working between the greenhouses and outdoor lots. They, too, have grown into their role as caregivers, often making independent decisions on how best to care for their ‘babies’. Experience has shown that it takes at least three years for someone to fully understand the special language of seedlings.

The seed is where it all begins. With top-quality seeds, it takes less than 30 years to grow a strong, healthy forest bringing profit to its owner. The journey from seed to a fully grown tree dozens of metres tall is a long and challenging one. The nursery in Joroinen aims to give each seedling the best possible start.
Living plants and automation
Nursery manager Anne Immonen gently stirs her hand through a bowl filled with pine seeds – her stress relief method of choice. Immonen explains that this 1.5-kilogram batch of seeds would be enough to yield 150,000 seedlings and a pinewood forest roughly five hectares in size.

What a waste to just keep them in a bowl! But not to worry – these seeds can no longer germinate, unlike the batches waiting in plastic canisters in the seed depot, all sourced exclusively from Finnish seed farmers and forests. UPM never purchases foreign seeds in order to prevent the spread of plant diseases – added to which it is always anybody’s guess if a foreign seed and the resulting tree can survive Finland’s harsh, snowy conditions.

Immonen knows the origin of every seed batch. This means that every outgoing batch of seeds from Joroinen is also labelled for origin. The nursery staff are also very careful in picking out the seedlings and their destinations. Their genotype decides. Seedlings from northern seeds are sent north, southern-born seedlings head south.

At harvest time, Immonen can tell a seedling’s place of origin by its colour. The seedlings from Kainuu in the north have a deep green shade, as they begin preparing for winter earlier than their southern counterparts. Immonen explains the “colour code” as we crouch to inspect a year-old lot of spruce seedlings.

“See, those reddish seedlings are already showing winter colours,” she points out.

True enough, the different tones are easy to tell apart when you look closely enough. At first the nursery looks like a rather monotone sea of young trees, but soon one’s eye starts picking up variety. An untrained eye is no match for the growers, of course – they have cared for the seedlings since germination and are well aware of what robust seedlings should look like at each stage of their growth.

“We only use the best seeds, as they are the foundation of a healthy forest. As with wines, every year is different, and we know each vintage,” Immonen says.

A double graduate with degrees
in forestry engineering and business administration, Immonen is a seedling grower through and through. She has been in charge of the tree nursery since 2006. In that time, the business has grown more technical: heavy physical labour has been replaced by automation to ease the daily routine.

The latest investment is a new robotic seedling packing line, with an automatic sowing line soon to be installed beside it. Next, an automatic sowing line will be transferred beside it. The new control room is almost ready as well; soon the growers will be able to check seed germination, plant house ventilation, seedling fertiliser requirements and other factors from monitors. This will improve work ergonomics and free up hands for other tasks around the nursery.

Live seedlings remain the centrepiece of the tree nursery. Immonen gives visitors a tour of the grounds with the confident style of an experienced guide. Eyes and ears open!

**Irrigation and packing**

On the edge of a seedling lot, we find grower Mari Nykänen monitoring the irrigation equipment above the spruce seedlings. Recent frequent rains have reduced the need for irrigation.

After irrigation, Nykänen will apply the autumn fertiliser – the last task before winter arrives. A healthy dose of nitrogen gives the seedlings an energy boost to help them survive the cold.

The staff pay close attention to weather charts. Grower Tero Kallinen checks the latest reports on his smartphone, but more important than the phone screen is the colour of the seedlings growing outdoors. A true expert can tell from a single glance whether a plant should be relocated or have its fertiliser and nutrients adjusted.

“You can end up with weak fertiliser if rain keeps washing it away, or you can apply the wrong fertiliser at the wrong time,” Kallinen describes.

“Here we live by the weather. Quick reactions were needed yet again this summer, as our original plans needed adjustment,” Kallinen continues.

Making the right call requires foresight and intuition.
“Luckily we have a good number of eyes on the plants,” says Immonen with a laugh.

From manual to automated packing
Tuija Räisänen, Jutaphak Jarotram and Mikael Smolander are found busily packing in the middle of the seedling lots. They are surrounded by trays and boxes with a packing machine in the centre. Jarotram inspects the seedlings one by one, removing any weeds and weak seedlings. A good seedling has a well-formed top, no forks in the trunk, no signs of the bishop bug and a strong root ball.

The label of origin peeking from behind the seedling row reveals that the three are working on the offspring of a forest in Pohja, Southern Finland.

After quality controls, Räisänen removes the seedlings from the tray and places them in a box. The work seems light, like flipping cakes from a mould to the serving dish. I want to give it a try. But, oh my – one tray weighs six kilograms! In a month, the staff lift and carry 30 tonnes of seedlings. Once the new automated packing line is ready, this heavy lifting stage will be eliminated, which will undoubtedly improve the health and well-being of the employees.

In the final stage, Smolander moves the seedlings, ball and all, into boxes and then into containers. The nursery’s logistics expert, Timo Ikäheimo, has pre-ordered transport to get the seedlings on their way at the optimum moment.

But this is yet to come: let’s first check on what is going on indoors.

Soft landing into a harsh world
Music is blaring loudly by the wall of the greenhouse – so loudly that even the people working halfway up the massive structure can hear it. Three employees are found lying on a peculiar machine. The machine is called the weeding wagon, and the three atop it keep reaching down as they chat.

Spreading out before us we can see a million tiny spruce seedlings less than three months old. Eija Hynninen, Anne Hassinen and Jari-Pekka Koskinen are positioned on the wagon they call the Ferrari, weeding the seedbed. The seedlings need to be cleaned for winter to avoid mould and other problems.

“These are our babies. Their growth rate is similar to a human’s and so is the length of their life cycle,” says Immonen.

The seedlings are planted in peat, each in its own tray. The surface of the soil is covered in a thin layer of sawdust to keep it dry and prevent moss from growing.

It is important to promote root growth in the early stages of a seedling’s life.

From the greenhouse, the seedlings are taken outside to toughen them up.

“It’s a little hard for us in autumn, as we have to throw open the greenhouse doors and have the cold air wash over our million children,” says grower Anne Hassinen.

The delicate seedlings have been growing in controlled conditions until now, and they need the initial shock of the cold to prepare them for later planting. Finnish trees must be able to cope with weather that swings to extremes: in summer, temperatures can reach 30°C, only to plummet to −30°C in winter.

In the outdoor lots, the seedlings are coated in artificial snow to protect them against the hardships of wintertime. After a year of growing, the seedlings are...
Now semi-retired, Martti Bagge drops by at the UPM forestry service office in Juva for coffee every other week. He comes to chat with Pekka Harmoinen, the forest account responsible. The subject of conversation varies, but Bagge mostly talks about his forests. Healthy trees are a subject close to his heart, as Bagge looks after forests owned by his and his wife’s family across an extensive region around Juva.

Bagge has been a regular at the Juva office for many years. Most of the family forests are from the 1940s and the 1960s, but the oldest date back to the 1800s. Having grown up with these forests, Bagge knows every square inch, unlike many younger forest owners, who may not even be sure of the precise location of their woods. This is not uncommon in Finland, where there are over 600,000 private forest owners.

Bagge is methodical in his work as a custodian of the woodlands. He grows forests of varying ages for both profit and recreational value. In 2016, Bagge oversaw the first mechanical planting of 7 hectares of spruce. For this he ordered the batch of about 13,000 seedlings from UPM’s tree nursery in Joroinen.

In a month, the staff lift and carry 30 tonnes of seedlings.

Eija Hynninen, Anne Hassinen and Jari-Pekka Koskinen weed the spruce seedling bed.

In innovations and research collaboration
In addition to basic seedling growing, the tree nursery also creates new products; the pikkukoivu (mini-birch) and the pikkolomänty (piccolo pine) are among their most developed innovations. The nursery works closely with universities and research institutes.

Nursery manager Anne Immonen dreams of one day expanding the nursery. The groundwork for future growth has been laid, including the new packing and sowing line. In the near future, the staff will be able to pack seedlings in shifts all year round, not just outdoors when the weather permits, securing the foundation for year-long availability of high-quality seeds.

We end our tour in the seed depot. Logistics expert Timo Ikäheimo opens a few cabinets to reveal white seed canisters with identification labels. These seeds are healthy trees in embryonic form, and the seedlings raised in Joroinen are prime genetic stock forming the foundation of Finland’s thriving forests.

Martti Bagge is an experienced forest owner, managing over 100 hectares of forests of various ages in Eastern Finland.

For this he ordered the batch of about 13,000 seedlings from UPM’s tree nursery in Joroinen.

Eija Hynninen, Anne Hassinen and Jari-Pekka Koskinen weed the spruce seedling bed.

Strong enough to be sold in the spring. Some seedlings are planted in the spring, others in autumn.

The work at the nursery follows an annual rhythm – seeds germinate in the spring, seedlings grow in the summer and the harvest follows in autumn.

Innovations and research collaboration
In addition to basic seedling growing, the tree nursery also creates new products; the pikkukoivu (mini-birch) and the pikkolomänty (piccolo pine) are among their most developed innovations. The nursery works closely with universities and research institutes.

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UPM Biochemicals has a Biomedicals department that fosters collaboration between corporations and universities in the field of biomedical innovation, delivering breakthroughs from which people, companies and all of society benefit.

UPM’s Biomedicals department spearheads UPM’s involvement in the field of medicine. The department has been working under UPM Biochemicals for a few years and has already built a successful tradition of collaboration between various research institutes.

Some three years ago, an interdisciplinary project between UPM and the University of Helsinki launched GrowDex®, a cellulose-based hydrogel. It is a fairly new product but it has already been granted an award for innovation in the chemical industry last year.

GrowDex is the first medical product to be launched by UPM’s Biomedicals department. The presenters of the award described it as an innovation that will most likely offer significant benefits to the health of people and the environment, both in everyday life and industrial applications. Today, GrowDex is already used by researchers around the world.

United front in cancer research
GrowDex is also used in the Institute for Molecular Medicine Finland (FIMM) based on the Meilahti Campus of the University of Helsinki. The institute uses GrowDex as a cell culture matrix in cancer research. The FIMM research institute is part of the new Helsinki Institute for Life Science (HiLIFE) department and specialises in personalised medicine.

This joint project by UPM and FIMM combines bioeconomy and personalised medicine.

“We are conducting cancer research. We receive cancer cell specimens from a neighbouring clinic and we culture these cancer cells under different conditions...”
This is how researchers are using GrowDex

Dr Roach and his research team are developing multi-channel 3D microfluidic chips, i.e. models that simulate the activities, mechanics, and physiological response of human tissues. When Dr Roach first heard of GrowDex, he was delighted to discover that it was a plant-derived material.

“I wanted to see how it would work in our devices. My students soon reported that it was one of the best performing gels under study. The performance of GrowDex for replicating very fine micro-feature detail for the culture of neurons has been absolutely phenomenal. I have recommended it to my colleagues in other universities as well.”

Paul Roach
Dr Widera’s research group is studying the potential of adult stem cells in the treatment of different degenerative disorders and diseases.

“Our study showed that GrowDex is biocompatible with human MSCs, and represents a feasible approach to upscaling of their culture. All the GrowDex batches were highly uniform in quality, and the gel was easy to handle. GrowDex has lower tendency than other hydrogels to produce air bubbles, which would negatively influence cell viability and result in non-uniformity of the gel. Stem cell culture in GrowDex allows a significant cost reduction, as 3D cell culture allows higher cell numbers per volume of cell culture medium.”

Dr Rinner’s research team have been developing new treatment strategies for rare cancer types. GrowDex has turned out to be an optimal culture medium for a specific melanoma cell line. Rinner had been looking for a non-toxic, easy-to-handle 3D cell culture medium that contained no animal products.

“We decided to culture our NRAS-mutated melanoma cell line in GrowDex to see the growth behaviour of the cells in 3D. Initially we found working with GrowDex challenging as it was difficult to pipette due to the gel’s viscosity. The natural growth of the cells more than made up for it.”
Craft beers from different microbreweries first made their breakthrough in the United States. Today the craft beer boom has spread all across the world.

Beer connoisseur and blogger Noora Kokkonen from Helsinki is not surprised that microbrewery products are now, quite literally, on every beer enthusiast’s lips.

“The complex taste of craft beers is fascinating. There’s a brew for every occasion, whether you are craving a beer to chill out with on a summer’s day or a beverage to accompany a certain dish,” explains Kokkonen.

Kokkonen enjoys tasting new beers as they appear on grocery shelves. When a novelty comes out, she is initially drawn to bottles

High-quality labels attract beer buyers

Beer enthusiasts not only appreciate a varied range of tastes in craft beers, but also an appealing package, starting with an eye-catching label.
and cans with a label that has something interesting about it.

“If the product has a stylish and fresh visual look, I’m instantly intrigued. Labels with bright colours or a minimalistic design are the ones I notice first. An interesting product label is a promise of quality content,” says Kokkonen.

**The packaging says it all**

Microbreweries have a reputation for taking a bold approach with new types of beer and flavours.

“The same goes for labels,” notes Noora Kokkonen.

However, a stylish look alone is not enough to seal the deal. A beer enthusiast expects all the essential information on the contents to be clearly visible on the packaging.

“This starts with the type of beer. I want to know if the beer is an IPA, APA, lager or something else. I also appreciate information on the type of hops used. If there is not enough information, I might not buy the product.”

Kokkonen adds that the look of the product should also reflect the taste.

“If the label features pictures of berries or fruit, for example, it is a clear indication that it’s a fruity beer.”

**Microbreweries invest in labels**

Pyynikki Craft Brewery is a Finnish microbrewery that caters to discerning beer connoisseurs. Brewmaster Tuomas Pere explains that their Tampere-based microbrewery is constantly developing its product range based on customer feedback.

“We also focus on the visual look of our products in order to make them as interesting as possible. Furthermore, we don’t want just the alcohol content and other mandatory information to be displayed on the label. We want to tell our customers more about the beer.”

Pere explains that it takes a couple of months to develop a new beer from an idea into a ready-to-buy product. The brewery team starts by thinking about the taste and recipe. At the same time, they also begin to plan the visual design in collaboration with an advertising agency.

“With 3D modelling, we can visualise the product’s appearance while the first batch of the new product is being brewed.”

**Esteemed beer competition winner**

Pyynikki Craft Brewery started brewing in 2013, and the company currently has over 2000 minority holders across Finland. Business is booming, partly thanks to the brewery’s success for two years running in the internationally renowned World Beer Awards.

This year’s winner was a beer called Mosaic Lager in the seasonal lager category.

The beer was named after the mosaic hops used to brew the beer, adding tropical and citrus notes.

“Mosaic Lager is an almost perfect all-rounder. The stylish can is the final touch, like a passionate kiss. The award took us into the big league in the brewing industry,” says Pere.

The label of the award-winning beer depicts a stylish cone of mosaic hops.

“We wanted a label that reflects...”
THE STRENGTHS OF A GOOD BEER LABEL

A strong brand, a local identity and a durable label make the Green Man Brewery stand out in the highly competitive US beer market.

The United States is the world’s top market for craft beers, but the competition between breweries is intense.

The Green Man Brewery produces traditional British and American ales in the city of Asheville in North Carolina. The microbrewery’s Marketing Director Elizabeth Keil knows all the tricks when it comes to impressing beer connoisseurs.

“We have been brewing beer since 1997 and have created a strong brand for our products. Consumers know what kind of beer they are getting when they see the Green Man Brewery beer bottle,” says Keil.

The popularity of craft beers is greatly boosted by the fact that beer enthusiasts favour local products, notes Keil. The Green Man Brewery markets their beers in North Carolina and neighbouring states.

Keil believes that the label is as an essential part of the product as a whole. A good label is designed so that it stands out from competitors and gives clear information about the content of the bottle or can.

“Labels also have to be physically durable. They cannot come loose or get damaged during packaging, transport and cold storage. Consumers don’t want to buy products that look worn.”

The Green Man Brewery uses UPM Raflatac’s label material.

Innovative adhesive label

Mosaic Lager is packaged in cans with labels made from UPM Raflatac’s Vanish label material.

“The material is so thin that it’s hardly noticeable. With Vanish, we were able to achieve an impressive design that truly highlights our brand. The label is big enough to tell the story of the beer,” says Pere.

Vanish responds to the needs of microbreweries because the adhesive is also a cost-effective option for labelling smaller batches of beer.

“What is more, the label is so thin that we can reduce the amount of material required and protect the environment.”

Because Vanish is so thin, labelled aluminium cans are recyclable just as they are. Previously, it has been difficult to recycle labelled cans along with other returnable cans with a refundable deposit. This is because the weight of label plastic has been too high in proportion to the weight of the can.

In Finland, the recycling rate of aluminium cans is 95 per cent. Compared to glass bottles, cans are a cheaper option for both manufacturers and consumers alike.
Absorbed in books

Books have the ability to console us, guide us and lift our spirits. Especially in print, they offer unforgettable memories and experiences. In Germany, many bookshops not only sell books, but also introduce customers to interesting new titles.

It is a Monday evening in a bookshop in Hamburg, where a side room is filling with eager listeners. Bookshop owner Stephanie Krawehl has selected two novels to present to her audience.

Krawehl’s store, Lesesaal, is located in Eimsbüttel, a quarter brimming with tiny brick-and-mortar shops. Customers coming to the bookshop always receive personalised service.

Lesesaal has the feel of a cosy living room, and the multi-coloured spines and beautifully laid-out covers of the books attract visitors like a magnet.
Germany is home to approximately 82 million people, and almost 90,000 new books were published there in 2015.

This evening’s event is themed around French literature and titles that have recently been translated from French into German, France being the Guest of Honour at the Frankfurt Book Fair in 2017.

Krawehl describes a novel by Dany Laferrière, How to Make Love to a Negro Without Getting Tired – a new title apparently unknown to everyone in the audience. The next novel she introduces is Giratoire by Dominique Paravel, another new name for all present. This is typical for the German bookshop owner: part of her work is guiding customers and introducing them to carefully selected new works.

Germany is home to approximately 82 million people, and almost 90,000 new books were published there in 2015. The publishing industry’s turnover that year was over EUR 9 billion. Without the reading tips provided by booksellers, finding just the right new book from amidst such a massive selection would be an overwhelming task for many readers.

After the presentation of new French novels, the attendees also discuss the differences between printed books and eBooks. There are plenty to be found.

“Printed books allow you to turn the pages slowly. You don’t get the same feeling from an eBook. Both printed books and eBooks are like flowers, but the eBook is a flower without a scent,” describes book club member Zouhair Mahmoud.

Bookshelf as the heart of the home
And what indeed would a home be like without any books? The prospect seems alien: everyone in the book club has a home library they have been adding to over the years.

Printed books create a cozy, homely feel, as they reflect the owner’s tastes and world view. Reading a book can provide an escape from the daily grind. Many people associate books with holidays, that special time of the year when they finally find time to read, fiction in particular. It feels wonderful to be fully absorbed in a book, like momentarily returning to childhood.

For a child, the home bookshelf can become a real treasure trove, always full of surprises. Childhood reading experiences occupy a special place in the hearts of many readers. Wolfgang Gierens says that the books he had at home had a major influence on his passion for reading. At first, he began exploring books through amazing artwork, as visual imagery made a great impression on him. It was not until later that he began to actually read the text.

“In the past, books were seen as status symbols, but nowadays the situation is different. However, some people still find the format of a book extremely important. Many young people are adamant about only wanting to buy books in print. Then the books find their rightful place on the bookshelf,” Gierens muses.
The inimitable smell of print

When the discussion turns to the group’s most memorable book-related experiences, the room truly comes alive. One literature enthusiast names *The Count of Monte Cristo* by Alexandre Dumas as having made the biggest impression. Another reminisces about the feat of wading through *Elective Affinities*, the novel by Johann Wolfgang von Goethe. The third remembers having read the entire bibliography of Franz Kafka in their youth.

Having familiar books on the shelf creates an air of safety and a feeling of being at home. It doesn’t matter if the pages are falling out after being read over and over, or if every corner is dog-eared – a fate from which eBooks are luckily spared.

The book lovers gathered at Lesesaal also hear excerpts from two French novels. The first captures the loud tapping sound of the Remington typewriter, the second conjures up a car whizzing through the French countryside.

This year, many Germans have enriched their bookshelves with French literature newly translated into German. After this evening, a good few will also be adding novels by Laferrière and Paravel to their shelves.

Printed books create a cosy, homelike feel, as they reflect the owner’s tastes and world view.

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PRIZE FOR INNOVATIVE BOOKSELLERS

Two diminutive diplomas hang in the window of the Lesesaal bookshop in Hamburg: Deutscher Buchhandlungspreis 2015 and 2016. This is a prize given to private booksellers with a turnover of less than EUR 1 million in recognition of their excellent work promoting literature.

“The award boosts your reputation in the book industry. It helps booksellers to be taken seriously and get invited to literary events,” explains Stephanie Krawehl, prize-winning bookshop owner.

Krawehl regularly organises events in her bookshop, actively participates in the literary life of Hamburg and strives to advance literature in schools and kindergartens.

There are approximately 6000 bookshops in Germany. Small, privately owned bookshops are a highly visible part of the urban landscape in many cities. Presented by the German Ministry of Culture, the Deutscher Buchhandlungspreis was launched in 2015 to highlight the significant role played by booksellers in keeping literature alive.

The award, presented by the German Ministry of Culture, was launched in 2015.

Read more: [www.deutscher-buchhandlungspreis.de](http://www.deutscher-buchhandlungspreis.de)
Wood is a living and beloved material. It smells good, feels good to touch, and it even has positive effects on our health.

Aalto University is doing a comprehensive scientific study measuring all the positive aspects of using wood products. “The fact that wood can play a positive role in reducing the effects of climate change is one of the biggest drivers increasing the use of wood in living interiors, exterior cladding and as a construction material,” states Mark Hughes, Professor of Wood Technology at Aalto University.

Hughes notes that there are several megatrends driving demand for new wooden buildings. “Constructions are long-living structures, so they store carbon for a quite long period of time,” he adds.

Hughes is leading Aalto University’s participation in the EIT Climate-KIC initiative. It focuses on innovations with positive climate change impacts and potential commercialization value.

“Some of the work that we have been doing is looking at the carbon footprint of different structures and construction materials. “Wood is a lightweight material in relation to its structural performance, so less material is needed for the foundations of buildings, which in turn decreases transportation costs,” Hughes says.

Balancing act
In addition to its carbon-mitigating impacts, wood is a “living” material in that it interacts with its surroundings and environment.

Wood is good for moisture buffering when there are major fluctuations and variations in relative humidity inside buildings. The properties of wood can help to control the environment passively, possibly even reducing the need for mechanical ventilation.

“Wood reacts by taking moisture from the air when it is humid and releasing it when it gets dry, so wood products help to control humidity and create a better environment for living. Generally speaking, these aspects have a positive impact on peoples’ health, but they may also reduce energy requirements,” says Hughes.

At room temperature, wood often feels warmer to the touch than many other commonly used materials. But what does this mean in reality? How much warmer should a “cooler” surface be to make it feel equally comfortable?

“We have compared different surfaces of equal physical temperatures. In order to give an equal sense of warmth, the temperature of a wooden floor can be a couple of degrees lower than some other materials. This can make a difference in energy consumption,” he explains.
Aalto University has also been exploring the tactility of wood, that is, how wooden surfaces should feel in order to be perceived as smooth and appealing.

“Sometimes a certain type of coating can decrease the feeling of naturalness of a wood surface. This is why it is important to understand what kind of coating improves the tactile perception,” observes Hughes.

“Through our research, we are trying to better understand the interaction between wood surfaces and interiors, and we have developed new types of coatings that make wood surfaces hydrophobic to liquid water but that still retain the ability to absorb moisture from the atmosphere,” he concludes.

**Cascading in construction**

Concrete and steel remain the preferred construction materials, especially in bigger projects, though wood construction is a slowly growing trend and the use of wood in multi-storey buildings is increasing.

“To increase the use of wood in structures and as a building material we need to increase knowledge and create a favourable environment and legislation. Wood building might be a bit more expensive and there are still regulatory and cultural issues hindering increased wood construction.

“Meanwhile, we need to rethink how to improve the material efficiency of wood material use within the bioeconomy by, for example, cascading,” notes Hughes.

“We have to maximise the forest’s ability to take carbon dioxide from the atmosphere. We can optimise wood cascading and increase the material efficiency and reuse of wood materials during their whole lifecycle.”

“When architects design buildings, they must envisage the deconstruction stage and consider how to convert wood residues into new products instead of burning the material. This would increase material efficiency,” Hughes notes.

Breathing easy on the Log Campus

Both students and teachers are happy with the new Pudasjärvi comprehensive school completed in 2016. The new, world-famous school is made of an ancient natural material: wood.

“We chose a log construction to combat health problems resulting from poor indoor air quality. The old school was made from concrete, and we had dozens of students and teachers suffering from allergic reactions caused by poor indoor air. These problems are now history,” says the school principal Mikko Lumme.

The walls “breathe” so there is no risk of mould accumulating in the structures and causing health issues.

Thanks to the excellent acoustics and attractive finish, the log school in Pudasjärvi has a very cosy feel.

“We have received excellent feedback on the pleasant surroundings from students and staff. The acoustics are also greatly improved,” says Lumme.

With its neutral colours and smooth surface, wood is a naturally soothing material. It is scientifically proven that in wooden buildings,
heart rates become more regular and stress levels are reduced.

“The logs preserve the natural colour of the wood, so the building feels like a home or even a holiday house,” adds Lumme.

The Pudasjärvi comprehensive school is the world’s largest school built from logs. The Log Campus is divided into four buildings, three of which are constructed entirely from logs. These three buildings house a primary school, a lower secondary school and an upper secondary school. The kitchen and emergency shelters are made of concrete. The estimated lifespan of the building is 150 years.

Grabbing headlines worldwide
The Log Campus has generated a great deal of interest both at home and abroad, attracting approximately 5,700 visitors to date.

“About one third of Finland’s municipalities have sent their local policymakers to visit. The number of domestic visitors is diminishing, but international interest is still growing. We’ve had about 2000 foreign visitors,” says Lumme.

In Finland, logs are becoming an increasingly popular construction material for schools, office buildings and retirement homes. Legislation and regulations governing energy efficiency are moving in a direction that supports the increased use of logs in the construction of public buildings.

Versatile plywood
Plywood is also a versatile construction material with typical end-uses in wall, floor and ceiling structures.

“Plywood constructions are usually hidden under tapestries and coatings, so they are not visible to the user. This does not undermine the importance of plywood, as buildings need a durable, safe and healthy frame,” says Olli Wirén, Construction End Use Manager at UPM Plywood.

“Birch plywood creates a pleasing light surface that is ideal for both business premises and home interiors. On the other hand, spruce plywood is often chosen for its more prominent natural streaks, veins and knots – a visual trend that has been gaining ground lately, especially in Central Europe.”

Light but strong
In addition to homes and holiday houses, the use of wood is becoming increasingly common in the construction of public buildings such as kindergartens and schools. In Finland, wood is used in approximately 40% of construction projects, whereas in Europe the figure is only 4%.

Plywood is manufactured by gluing several layers of wood veneer together crosswise. The layered structure evens out the natural inconsistencies of single veneers, making the plywood sheet exceptionally strong and consistent.

A safe product
All WISA® plywood products bear the CE marking complying with the criteria of the European Union Construction Products Regulation. This means that the products are carefully defined as well as documented and are always inspected and validated by a third party.

The EU has also set strict maximum values for the amount of formaldehyde permitted to evaporate into the air from wood sheets. Formaldehyde is a natural chemical compound that is commonly found in plants and trees.

“For example, the WISA plywood products emit less than a tenth of the EU’s threshold limit for formaldehyde,” says Product Manager Riku Härkönen.

Pudasjärvi comprehensive school is the world’s largest school built from logs.
Strong patent portfolio secures future value creation
UPM innovations are protected by patents and other intellectual property rights, which are critical as the company ventures into new business areas. A strong patent portfolio not only provides a competitive edge, but also a solid basis for future value creation.

The innovation performance of a company is often measured by the number of new patent applications it files. Every year, UPM files approximately 350 patent applications across the world. In Finland alone, the company was granted over 50 patents in 2016—more than any other Finnish company.

Jyrki Ovaska, Executive Vice President of Technology at UPM, sees patents and other intellectual property rights as a key competitive advantage and value creator. “This is why UPM has always protected its intellectual property rights by filing for patents, which is becoming even more important as the company expands into new business areas in line with the Biofore strategy.”

Patents protect innovations
Wood-based biofuels and biochemicals are among the areas where UPM is generously focusing its R&D resources. Every new innovation entitles the creator to a variety of intellectual property rights.

“Developing a new product is like going on an expedition. It’s a long journey where new routes open up along the way, allowing us to develop materials for different end-use applications. This journey also leads to new technologies being discovered and patents being filed to protect them,” Ovaska explains.

UPM has already applied for patents on several innovations in these new business areas, such as its bio-based UPM BioVerno diesel and naphtha. In addition, the company has patented technologies used to manufacture biofuels from wood-based crude tall oil, an innovation developed at the UPM Research Centre in Lappeenranta.

Patents are also pending on technologies developed by UPM for manufacturing lignin-based products for a wide range of applications. These wood-based products can be used to replace oil-based components in...
“Developing a new product is like going on an expedition. It’s a long journey where new routes open up along the way, allowing us to develop materials for different end-use applications. This journey also leads to new technologies being discovered and patents being filed to protect them.”

– Jyrki Ovaska

Another good example of a patent-protected innovation is the GrowDex hydrogel used for cell cultures in laboratory research,” says Mika Timmerbacka, Director, IPR at UPM. He notes that patents and other intellectual property rights continue to play an important role in traditional UPM businesses as well.

“It’s absolutely crucial in maintaining our competitive edge in areas such as paper and pulp production. We need even better technical solutions and innovations to utilise wood, chemicals, energy and water more efficiently than before. We protect innovations that help to boost production by applying for patents on them.”

Partners playing a more prominent role
According to Timmerbacka, the company’s own R&D activity plays a central role in creating innovations. New ideas to streamline operations are also born spontaneously in the production facilities.

In other cases, innovations are directly spurred by discussions with customers.

“The customer interface is a point where we see the customer’s needs and challenges up close. Then we can start considering new kinds of solutions to meet them.”

Timmerbacka emphasises the importance of different partner networks in developing new solutions. UPM collaborates with parties such as equipment manufacturers and has a long history of partnering with universities and research institutions on various research projects.

“Today, operations related to innovation involve more and more collaboration and discussion with our partners. The intellectual property rights held by UPM provide a strong backboard for the negotiations and help us to reach favourable agreements,” Timmerbacka says.

Agreements made with partners play an essential part in intellectual property rights management.

“We need to agree on matters related to intellectual property rights at an early stage, long before the innovation is commercialised. This helps us to prevent any disputes in advance,” Timmerbacka states.

Executive Vice President of Technology Jyrki Ovaska says that new business areas also lead to new kinds of partners becoming involved.

UPM is for instance collaborating with several start-ups developing new...
technology — and the way they operate can be very different compared to traditional companies.

“New and growing companies are usually focused on acting fast, so they do not place as much emphasis on making agreements on intellectual property rights. When we’re working with start-ups, it is important to find a way to agree on matters without stifling the flow of innovation and new ideas right at the beginning,” Ovaska notes.

Revenues from licensing patents
Active and professional intellectual property rights management involves regular reviews to assess the importance of each patent to the company. Only those rights that are considered necessary for business should be kept in the company’s own patent portfolio.

Ovaska notes that UPM can also earn revenues by selling or licensing patents to external partners.

“In the past, forest industry patents were rarely licensed out,” Ovaska states.

Intellectual property rights management at UPM is a global effort. There is no patent protection at a global level, as each patent is only valid in the country in which it was applied for and was granted.

Timmerbacka notes that the process of filing patent applications and managing other intellectual property rights requires a deep understanding of national legislation and regulations. To this end, UPM utilises the expertise of local patent and trademark attorneys in different countries.

“The patent application process usually takes about 4 to 7 years. It requires constant contact with the authorities of the country in question,” Timmerbacka says.

Brands also need protection against competitors
In addition to patents, trademarks are another form of intellectual property that is important to UPM, helping the company’s products stand out from the competition.

“UPM’s customer base mostly consists of other companies, but established and trusted product brands are very important in this market as well,” Timmerbacka states.

Intellectual property rights also cover assets such as Internet addresses and plant breeding rights, UPM has obtained the latter to protect the eucalyptus species developed for the company’s plantations in Uruguay.

“Eucalyptus had not been grown in the country before, so we had to develop a tree species that was adapted to the local conditions,” Timmerbacka explains.

Intellectual property rights management also involves overseeing patent and trademark rights and taking action in cases of infringement.

Many global corporations have come across illegal imitations of their products and cases of unauthorised trademark use, especially in emerging markets.

Ovaska says that UPM has had to take action in China, where illegal imitations of UPM copying papers have been available on the market.

“Our policy is to react to any observed abuses immediately,” Ovaska states.

He says that the circulation of pirated copies usually stops quickly once the offending parties have been identified and contacted.

“The Chinese authorities have also been very efficient in taking action to quickly clear such illegal imitations from the market.”
Bonding breakthrough: the new life of lignin

“This technological breakthrough is the most significant innovation in plywood bonding in five decades.”
– Susanna Rinne, UPM Plywood
WISA BioBond marks the beginning of a new era in plywood production. While maintaining the excellent characteristics of WISA plywood products, UPM Plywood's bonding innovation largely replaces oil-based phenol with environmentally sustainable lignin.

Lignin, the bonding material in wood fibres, is a residue of pulp production. UPM is constantly developing new, innovative uses for lignin, one being its use as a component in adhesives.

Relentless R&D efforts have now paid off. At the beginning of October, UPM Plywood launched its new WISA BioBond bonding technology in plywood production.

Oil-based phenol is used in traditional plywood adhesives. Thanks to UPM's innovation, phenol can now be replaced to a significant degree with environmentally sustainable lignin.

The development of lignin-based bonding technology has been a long-term goal for the company.

“This technological breakthrough is the most significant innovation in plywood bonding in five decades”, says Susanna Rinne, Vice President, Business Development at UPM Plywood.

World first in plywood adhesives

WISA BioBond is the perfect example of UPM’s Biofore strategy in action. One of the company’s main strategic goals is to utilise renewable raw materials in an innovative, effective and sustainable way.

“Lignin is generated as a by-product in the pulp manufacturing process, and up to now it has been incinerated for energy production. Now the same raw material is being refined into a high-quality product that can replace fossil raw materials,” Rinne explains.

Lignin can replace 50% of the phenol used in the bonding of plywood. UPM’s goal is to increase the amount to close to 100% in the coming years.

“Here, UPM is a forerunner. Previously, there haven’t been any plywood products on the market using a lignin-based adhesive to this extent.”

UPM Plywood plans to gradually adopt the new bonding technology at all of its production facilities. The company’s plywood and veneer mills are situated in Jyväskylä, Joensuu, Savonlinna, Mikkeli and Kouvol. In addition to Finnish mills, UPM plywood has mills also in Russia and Estonia.

Same strength, same quality

The characteristics of the plywood produced using the new bonding technology are similar to the products produced using traditional methods.

“Using lignin doesn’t affect the characteristics of the plywood product. The new bonding technology marks no practical change for end users, and they don’t need to modify their processes in any way,” Rinne says.

UPM Plywood produces high-quality WISA plywood and veneer products for mainly construction and transport industries.

“As the rollout of the technology advances, our customers will get a chance to benefit from the environmentally sustainable features of WISA BioBond in their business,” Rinne says.

New lignin solutions being explored

The development of WISA BioBond has involved many different business areas within UPM. The bonding technology is based on the UPM BioPiva lignin technology, which was developed and patented by UPM Biochemicals.

UPM Biochemicals develops sustainable and competitive wood-based biochemicals for a variety of industrial uses.

“We have utilised UPM’s wide-ranging know-how in the development of WISA BioBond. This involves many areas of expertise, including chemistry, materials and industrial production,” says Juuso Konttinen, Vice President of UPM Biochemicals. R&D at UPM Biochemicals utilises the natural characteristics of lignin, and the material is being developed for various applications. Lignin is a natural polymer with features similar to an adhesive.

“In addition to adhesives and resins, we are also researching the use of lignin in biocomposites, for example. Innovations such as the production of carbon fibre could be one of the potential applications for lignin in the long run,” explains Konttinen.

For more information on lignin adhesives, visit: www.wisabiobond.com
Chinese families charmed by Nordic timber
Generally speaking, older Chinese people often like furniture made of solid mahogany, pear wood or sandalwood, but the younger generation prefers to furnish its homes with lighter, natural wooden furniture. Discerning middle-class families are willing to pay more for high-quality, safe, toxic-free products, especially for their children. Finnish timber has a good reputation among well-informed Chinese consumers.

**Finnish spruce to China**

UPM Timber’s customer, Sampo Kingdom Household Co, Ltd, is a major Chinese furniture manufacturer based in Shenzhen, and for 17 years, it has specialised in Finnish spruce furniture for children and teenagers. The company offers three main styles: Scandinavian, American and “minimalist Chinese”. Sampo’s typical customers are young married couples aged 25 or above with children aged two to ten.

Chinese parents typically buy a bed when their child reaches the age of three, so that the child can learn to become more independent. They also buy new children’s furniture to celebrate Children’s Day in June, on birthdays, and during summer and winter breaks from school and kindergarten.

**Safe and natural**

When Frank Tang, manager at a fitness centre in Shenzhen, and his wife, Janet Zhang, wanted to buy a desk for their three-year-old son, the young couple found out about Sampo Kingdom through online research and recommendations from their friends.

They brought their son along to the shop and let him choose for himself. “Chinese kids today are quite independent and strong-willed,” says Frank with a smile.

The desk is natural wood without any colour coating. The boy is still too young to read but he likes to display his photos and favourite toys on it.

For Frank, safety is the top priority when choosing furniture for his son.

“I want to know what materials it is made of, whether the company is reliable and has had any negative media coverage and whether the manufacturing process causes any environmental pollution,”

The couple furnishes their home with natural wooden furniture.

“Nordic style is very popular in China, with its simple, minimalist and practical aesthetics, similar to Apple’s iPhone,” Frank says.

**The influence of social media**

The couple is now eyeing a new bunkbed as their next purchase, as they are considering having a second child.

After China scrapped its one-child policy in 2015, more and more Chinese families are looking to have a second child. All businesses specializing in children’s products and services have welcomed the new policy with open arms.

Cheney Chanuang, Brand Director of Sampo Kingdom, believes that the two-child policy will create plenty of market potential for sales of children’s furniture in China over the next decade.

Currently, Sampo has 800 stores in China, and will expand to over 1,000 stores next year. The company has been active in undertaking corporate social responsibility initiatives to enhance their brand image through word-of-mouth. Recommendations on social media such as online forums and WeChat, especially from key opinion leaders and their friends, have a major influence on purchasing decisions.
At rush hour, traffic can be seen, heard and felt: exhaust gas emissions are released at street level, directly into the air we breathe. Carbon dioxide is only part of the problem: exhaust gases also contain nitrogen oxides and nanoparticles that are hazardous to health.

A few metropolitan cities such as Paris are trying to improve air quality by banning diesel cars and trucks from accessing the city centre from the year 2025 onward.

“Emissions from passenger cars can also be reduced with renewable fuels or other low-emission options, such as electricity. There are, however, fewer options for cutting emissions from heavy duty traffic,” says Maiju Helin, Senior Manager, Sustainability and Market Development at UPM Biofuels.

In Finland, heavy duty vehicles consume approximately 80% of all diesel, while the proportion globally is 70%.

“Increasing the usage of renewable low-emission fuels such as renewable diesel in heavy duty vehicles is an effective and readily available solution for both the
Advanced biofuels are essential to achieving our long-term climate goals,” says Helin.

Finland strives to focus on reducing the effects of fossil fuels by increasing the usage of renewable fuels. The goal is to increase the proportion of renewable fuels to 30% of total fuel consumption.

“Of all the EU member states, Finland is a bold example of a country that is determined to cut emissions,” says Helin.

Reducing emissions with renewable fuels
UPM produces wood-based renewable fuel, UPM BioVerno, which reduces carbon dioxide emissions by up to 80% during its lifecycle.

“We have calculated the emissions generated during the lifecycle of the fuel and compared this amount with the carbon footprint of fossil fuels. Transportation of raw material, storage, processing and distribution are all included in the calculations.

The calculation is based on actual emissions,” explains Helin.

In Finland, passenger car traffic accounts for about 60% of greenhouse gas emissions, with the rest coming from vans, lorries, buses and motorcycles.

In addition to carbon dioxide emissions, the use of UPM BioVerno reduces other harmful exhaust emissions, such as nitrogen oxides and particles.

“These emissions directly affect the air quality in cities, so UPM’s fuel is one solution for cutting down exhaust emissions,” says Helin.

Already this year, UPM BioVerno fuels have reduced carbon dioxide emissions from road traffic by over 170 million kg. The production capacity of UPM BioVerno diesel is sufficient to tackle annual carbon dioxide emissions from cars in a city roughly the size of Turku.

Last year, UPM tested its wood-based renewable UPM BioVerno diesel on buses in the Helsinki metropolitan area.

The tests showed that UPM BioVerno performed as well as the highest-grade diesel in heavy duty city traffic. Renewable diesel offers the greatest potential reduction in emissions in older vehicles, as they are not equipped with diesel particulate filters (DPF) or selective catalytic reduction (SCR) catalyst.

Refining the biorefinery
UPM produces UPM BioVerno at its biorefinery in Lappeenranta, Finland, which has been operational for almost three years.

Efforts to optimise processes at the UPM Lappeenranta Biorefinery are yielding excellent results. Producing one tank of renewable fuel currently consumes up to 25% less energy than last year.

“Optimizing the production processes takes time in new facilities. We have now stabilised our production processes at the biorefinery, and...
the facility’s energy efficiency has greatly improved, as we have constantly developed our operations at the biorefinery,” explains Helin.

UPM’s renewable fuels are produced from waste and residues that are generated by the forest industry.

“Renewable raw materials which are based on biomass and forest industry residues are a sustainable solution. They also don’t affect supply chains in food production,” notes Helin.

In addition to renewable diesel and naphtha, the UPM Kaukas mill site in Lappeenranta produces sawn timber, pulp and paper.

The mills efficiently utilise each other’s products and residues, minimizing the use of raw material and fuel sourced from elsewhere. The mill is mainly powered by the excess energy generated by pulp production. The bioprocess gases of the refinery are also harnessed for energy.

**The path to bioeconomy**

Investing in the production of renewable fuels has proven to be an excellent way to advance also other sectors of the bioeconomy.

“As demand grows, companies are investing and expanding their production. At the same time, we are constantly finding new opportunities to replace fossil fuels by utilizing our renewable raw materials more efficiently. We are already selling by-products from production at the Lappeenranta Biorefinery to the petrochemical industry for use as raw materials for bioplastics,” explains Helin.

Consumers are also becoming more aware of their choices, and the industry must keep up with this trend.

“Legislative obligations and consumer demand to increase the use of bio-based products go hand-in-hand. Due to the combined effect of both, our dependency on fossil fuels will decrease in the long run,” says Helin.

“UPM as a responsible company that develops bioeconomy-focused, sustainable solutions, is set to play a meaningful role in mitigating climate change,” she concludes.

Renewable fuels will reduce carbon dioxide emissions from public transport by 80 per cent, which amounts to 120,000 tonnes per year.
Aiming for improved air quality

UPM has been testing its wood-based renewable diesel UPM BioVerno on buses in the Helsinki metropolitan area, Finland, since 2016. The test is being carried out in collaboration with the Helsinki Regional Transport Authority (HSL), VTT and Helsinki City Construction Services, Stara.

HSL aims to have buses operating within the Helsinki area using 100% renewable fuels by the year 2020. This is a significant project, as HSL runs a fleet of approximately 1,400 buses in the Helsinki metropolitan area, and they consume roughly 40,000 tonnes of fuel per year.

“The aim of the project is for all of Stara’s commercial vehicles and bus services commissioned by HSL to switch from regular fuels to renewable fuels by 2020. The project started in 2016, and the aim is to increase the amount of renewable fuels in transport each year”, describes Marko Snellman, Commercial Manager at UPM Biofuels.

Renewable fuels will reduce carbon dioxide emissions from public transport by 80%, which amounts to 120,000 tonnes per year. The amount contains both direct emissions from fuel combustion, as well as the emissions from the production.

With targeted use of renewable fuels, harmful tailpipe emissions, such as nitrogen oxide and particles, can be reduced too. People living in the city are exposed to less air pollution, because particle emissions are decreased by up to 30%. The effects can be seen in the air quality of Helsinki city centre, in particular.

Approximately 500,000 tonnes of biofuels are produced each year in Finland. Helsinki is one of the world’s first urban regions to switch from regular fuels to 100% waste- and residue-based fuels in public transport.

BIOPLASTICS FOR THE POST-FOSSIL AGE

The world is facing growing pressure to abandon plastics manufactured from fossil raw materials. A promising alternative is offered by bioplastics, which are produced from 100% renewable raw materials.

UPM BioVerno naphtha produced from crude tall oil is an excellent biocomponent in petrol. It also works exceptionally well as a raw material for producing bioplastics.

“Naphtha produced from renewable raw materials is an excellent raw material for bioplastics. This is good news for the packaging industry, which aims to reduce its carbon footprint and enhance the usage of renewable raw materials, especially in plastics,” says Marko Snellman, Commercial Manager at UPM Biofuels.

Bio-naphtha is suitable for various packaging applications. These include packaging used by the food industry, such as cartons for liquids or yoghurt.

Currently, there are only a handful of bio-naphtha producers in the world.

“As yet, there is no legislation requiring packaging manufacturers to use bio-based raw materials. Their usage rests solely upon the manufacturers’ desire to reduce their carbon footprint,” Snellman describes.

In the future, the recyclability of packaging, renewable raw materials, and responsible operations are set to grow more important than ever.
Market agility in electricity consumption provides a competitive edge

UPM Energy offers a brand-new service by selling expertise to industrial scale electricity consumers.

With the electricity market facing the biggest change in its history, buying electricity can be the most difficult part of sourcing raw materials for industrial consumers. Even though the market’s focus is now shifting from producers to consumers, there are still many challenges. The market is increasingly handled in real-time, and it is becoming more complex and harder to predict. Prices fluctuate significantly depending on the time of day and season, and the market is evolving more rapidly than ever. Recent years have also seen an increase in market regulation.

Industrial consumers can be the winners of the ongoing market change, and the potential benefits are great, but very difficult to realise. If a large industrial company wants to buy its electricity directly from the market, the process is time-consuming, and might even require a whole day’s work from several people. If the company cannot devote enough time to buying smart, it could end up purchasing expensive electricity, and thus lose a valuable advantage.

UPM Energy extends its helping hand to tackle this problem. UPM has been operating in the Nordic electricity market both as a producer and a consumer since the birth of the market. Now the company is sharing its unique expertise to help customers.

“We have extensive experience in the processes of an industrial scale electricity consumer, and we know how these processes are seamlessly incorporated with the electricity market,” says Anne Särkilahti, Director, Business Services, UPM Energy.

“We help our clients to integrate their industrial processes with the electricity market,” says Anne Särkilahti from UPM Energy.
“We have been ambitious in developing our expertise and bringing it to the next level. We have focused knowledge in trading, IT systems and hydropower production models, as well as in developing market analyses. Now this knowledge is also available to external customers,” says Särkilähti.

**From passive consumer to value creator**

The new service is about market agile electricity consumption and operating within the market on behalf of the customer. The business model is brand-new within the industry, and it has been formulated in such a way that both the customer and the service provider benefit. The fee is based on the added value created for the customer.

“In practice, we help industrial electricity consumers to operate as smartly as possible within the energy market. The passive consumer, who was previously expecting the worst, can now evolve into a trader who understands the complex electricity market, and can even benefit from it economically. This gives our customers a clear advantage over the competitors, who haven’t organised their affairs as systematically,” says Särkilähti.

“If the sourcing hasn’t been carried out thoroughly, the price could be very high in some cases. However, if the company utilises the opportunities available, it could benefit from the expertise and gain an edge on the competition,” she adds.

If electricity consumers follow the price of electricity, understand the inherent flexibility of their processes and can predict their consumption well enough, they can keep the price risk under control and derive major benefit. When business processes are under control, electricity bills don’t come as a major surprise, and companies can even make additional profits.

**Looking for cost cappers**

By utilizing the expertise of UPM Energy, customers can optimize their operations and harness the cheapest available electricity.

“We won’t begin any market measures before a common procedure is created together with the customer. This agreed procedure guides our actions,” explains Särkilähti.

The first step is identifying potential ways of harnessing cheaper electricity.

“We begin from the customer’s current state, and analysing the opportunities for more market agile operations. After that, we design an operating model and test it in a pilot phase. It is essential that the customer’s entire organisation understands what we are doing. Ultimately, the success of the process depends on how much the customer’s entire personnel is invested in it. It’s all about building trust,” says Särkilähti.

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**THE NORDIC AND BALTIC ELECTRICITY MARKET**

**FINANCIAL MARKET (NASDAQ COMMODITIES)**

This market trades in electricity derivatives with a time horizon of several years. With derivatives, companies can conclusively determine their future cash flows.

**SPOT MARKET (NORD POOL)**

This integrated Nordic and Baltic market trades in day-ahead hours, and the price is then calculated for each hour. In the spot market, the operators send their bids to the Nord Pool daily by 13:00 Finnish time. The bid includes the price and the amount of electricity the operators are willing to buy or sell each hour. Based on these bids, Nord Pool then calculates aggregated supply and demand curves. According to the law of supply and demand, the spot contract of electricity is determined at the intersection of these curves.

**ELBAS (NORD POOL)**

After the spot contract has been determined, trading on the secondary market for the same hours commences. This occurs in cases such as when the produced electricity sold on the spot market cannot be delivered due to a power plant failure.

**BALANCING ELECTRICITY, CAPACITY AND RESERVE MARKET (MAIN GRID OPERATOR, FINGRID IN FINLAND)**

The main grid operator keeps the main grid in balance with the help of these markets.
Families with children need decking that is up to the task in more ways than one. Not only must it be durable and low-maintenance, but it should also be cosy and easy on the eye. Endless green fields spread out in every direction beneath the open sky of Northern Germany. Cows graze in pastures and birds of prey circle the sky. We are in Riede, a tiny municipality in Lower Saxony, the perfect rural haven to raise a family.

The Koss family lives in a detached house at the end of a narrow road. On arrival, the large garden immediately reveals that there are small children in this household. Toys are scattered all around, with a ride-on car and swing in the yard.

The mother, Cecia Koss, opens the door and invites us to come in. The boys Levi and Marlon, aged five and three, are playing with their grandfather. Their father is still at work. As we watch the boys play on the outdoor deck, our attention turns to the material: the Koss family has selected UPM ProFi, a biocomposite developed by UPM.

Taking hard knocks
The large deck blends in naturally with the look of the house. The pale colour of the roof gives it an airy feel, and the glass walls on each side are see-through. The curly branches of a Peking willow hang close to the side of the deck. Though we are sitting outside, it feels like an extended living room.

We soon witness first-hand the rough
QUALITY COUNTS FOR THE INSTALLER

Emmanuel Vendéoux is a UPM ProFi Gold Installer who specialises in deck installations. He works for landscape designers EN’VERT Paysages in Villaz, a town in the French Alps.

“What I like about the UPM ProFi Deck is the large choice of durable colours and the good price-quality ratio compared to other products. There are also really unique solutions such as the UPM ProFi Rail Step. And if home owners want a totally closed surface, I show them the UPM ProFi Alu Rail solution. What I especially appreciate during installation is the width of the boards (15 cm), which enables me to cover a bigger surface with the same amount of board as many other products. Last but not least, it is a durable product that has good stain resistance.”

When choosing materials for families with children, easy and effortless care is a definite advantage.

“It only takes a brush and some water to clean the deck. We don’t need to oil the floor or treat it with preservatives,” Koss explains.

The family’s deck was finished in 2016. They selected the lightest shade of grey in the UPM ProFi Deck colour palette, pearl grey, because it was the closest match with the house.

“The properties of the decking material have been even better than I expected,” Koss says.

The look of the deck is also praised by visitors.

“Everyone has loved how light the colour is. At first, our guests are usually a bit cautious, asking if the floor is easily scratched by the chairs, but I always tell them there is no need to worry.”

The boys are allowed to bring all their toys onto the deck, including the ride-on car, bike and wheelbarrow. It has even withstood a lawnmower being pulled across its surface. Despite all this hard wear, no scratches are visible, which she agrees is quite a miracle.

Foot friendly material
The family spends a lot of time on the deck, using it for barbecues, socializing, playing and generally taking it easy. On rainy days, mum urges the boys to go out and play on the deck when their energy levels become hard to contain within four walls.

The floor feels particularly pleasant underfoot.

“It’s never too hot or cold. It maintains an even temperature in both summer and winter,” Koss describes.

The Koss family also appreciates the fact that the floor does not splinter. All mothers and fathers know what it’s like to remove a splinter from the foot of a small child – an ordeal from which they are spared by UPM ProFi decking.
Sustainable viticulture in South Africa

Top quality wines are produced in the ecologically sensitive region of Cape Floral Kingdom. Sustainable wine production covers everything from soil management to wine bottle labels.
Wine production takes the combined effort of several operators. The long value chain involves land owners, winegrowers, tourism operators, retailers, label makers – and, of course, consumers.

The Western Cape of South Africa has a long tradition in wine growing, and over the past ten years, the region has been a global leader in sustainable farming practices. This is mainly due to the efforts of the World Wild Fund for Nature and its Conservation Champions programme – a unique partnership between a conservation organisation, the wine industry and producers who own and manage the land. The goal of the programme is to raise awareness in the wine industry regarding sustainable wine production and the conservation of biodiversity.

Every single decision from soil management to the selection of labels has a far-reaching impact. Responsible soil management helps respond to climate change and droughts, and sustainably sourced label materials create less label waste. Their origin is also known, as the paper is made of certified wood fibre.
Joint project by UPM Raflatac and WWF promotes responsibility

UPM Raflatac has worked with WWF South Africa since 2015. WWF has helped the label manufacturer gain contacts in the wine industry and open a line of communication, which is important for promoting sustainable development throughout the value chain.

UPM Raflatac and WWF have visited vineyards and seen how many growers are committed to responsible practices. Many have taken practical steps in areas like energy efficiency, waste management and cleaning local rivers that pass through the farms and vineyards.

Some vineyards have taken up organic growing at the risk of reducing their harvests. They have committed to conservation and left some areas on their farms in their natural state to increase biodiversity. The natural areas draw insects off the wine-growing areas, which has helped immensely, as chemical pesticides are forbidden in organic agriculture.

The growers have also been interested in learning how they can promote responsible practices with labelling. Here, the label supplier has several options to offer.

Choosing the right label reduces waste

A round-table meeting was held for the wine producers participating in the Conservation Champions programme so they could discuss collaboration with WWF South Africa and UPM Raflatac. Many producers indicated they wanted to get rid of label waste.

“We can offer thinner label stock, which will reduce the amount of waste produced,” says Shaun Rootman, Technical Sales Manager at UPM Raflatac.

Working in Durban, Rootman is familiar with both the unique features of the Cape winelands and the recycling expertise in Europe.

“Our RafCycle® concept specialised in the recycling of label waste works well in Europe, but the necessary infrastructure is missing for now in South Africa,” Rootman clarifies.

The local printing houses and packers do not have the network or other recycling solutions required to collect and reclaim label waste, so the waste ends up in landfill.

“We would like to further the recycling of label waste, which is also the wish of the wine bottlers and printers, but it still requires a lot of work,” Rootman says.

Making labels visible in the value chain

UPM Raflatac is engaged in close dialogue with WWF and wine producers, and participates in industry expositions and other events.

“We want to make labels a visible part of the value chain to increase responsible practices. This is something we cannot do alone, however. Cooperation with stakeholders and different organisations is important,” Rootman says, adding:

“We know price is often the deciding factor, but awareness regarding sustainable development is on the rise.
The Western Cape in South Africa, where the majority of South African wine is produced, is also the home of the Cape Floral Kingdom, a globally unique biodiversity hotspot. It is a UNESCO World Heritage Site; approximately 9,500 different plant species grow in the area, majority of them native species.

Here, the wine growers aim to operate responsibly, improve the soil, secure freshwater reserves and prevent wildfires.

In 2004, WWF South Africa launched the comprehensive Biodiversity and Wine Initiative (BWI), which later became the Conservation Champions programme. In 2017, the programme includes 38 wine producers. The programme’s objective is to develop cooperation between the wine industry and land owners and create best practices together.

“Our wish is for the wine producers to understand the importance of the production chain as a whole. This year we have added the printing industry to the chain,” says Shelly Fuller, programme manager of fruit and wine initiatives at WWF South Africa.

WWF also engages in dialogue with wine marketing experts and consumers.

“Consumers in Europe are highly aware of sustainable choices, whereas South African consumers are more interested in price, and they are loyal to certain brands. Not everyone is clear on what biodiversity means. If biodiversity is marked on the label, people may not relate it to sustainable wine production. We are trying to find a way to make the full story easier to understand,” Fuller says.

WWF has prepared a small folding leaflet with a list of the wine producers who are Conservation Champions. The pocket-size leaflet can be easily taken out when selecting a wine, and it helps consumers identify sustainable wines. Most recently, the leaflet has been developed in to a mobile application.

The producers belonging to WWF’s programme add a logo on their bottles: the cape sugarbird perched on a protea flower. This logo informs consumers that the wine has been produced in a vineyard that conserves nature, water and energy in their production, and promotes biodiversity.

Even today, nearly 85 per cent of wine bottle label material is FSC certified, meaning the raw material has been sourced from responsibly managed forests. Still, customers and consumers do not always understand this.”

The wine growers have been using sustainable label materials for years when they have used products of UPM Raflatac. The label manufacturer can help support the trend by developing thinner and more efficiently produced materials, as well as sharing their knowledge regarding recycling, responsible sourcing and sustainable development opportunities in the label industry.

“We want to be a partner of choice for a smarter future,” Rootman concludes.
Responsible Fibre is a differentiator
Changing values and sustainability demands together with Nordic heritage have become important sources of competitive advantage for UPM’s copy paper brands in China.

China’s modernisation was once characterised by fast growth at the expense of environmental considerations. Times have changed, and topics such as sustainability are now high on the agenda not just in corporate boardrooms, but in companies and government agencies across China.

Making responsible choices means choosing sustainability and prioritising the environment through one’s choice of products, services and partners.

UPM has re-branded the UPM Jetset copy paper line in China highlighting the key message of responsibility, along with Nordic quality and safety. Products were launched under the theme “Make Responsible Choices” with major media and customer events in Beijing and Shanghai, along with widespread media coverage across China.

Responsible Fibre is a differentiator
UPM Jetset office papers are now carrying UPM’s proprietary “Responsible Fibre” trademark with the most demanding third party-verified environmental and social responsibility criteria in the industry. The criteria cover the whole life cycle of the product from forestry and sourcing to sustainable production, including responsible sourcing, sustainable forest management, low-emission production processes, transparent performance, non-use of harmful substances, certified environmental management systems, safe and healthy working environments, and social responsibility – all adding up to a unique and important symbol of UPM’s leadership in the paper industry.

Eddie Chan, explains: “Responsible Fibre is perfectly timed – the central government are discussing how to improve the environment, and in the past six months this has become a major topic. Even five years ago this would not have been discussed here in China. People feel we are really speaking the same language.”

Responsible Fibre is also a major differentiator among other copy paper brands, which generally compete on price and quality.

“UPM focuses on developing responsible brands – and brand makes a huge difference for our customers. People are looking for sustainable alternatives - and we can offer unique choices for them. It makes a great impact on our customers,” notes Chan.

Nordic heritage
Working with UPM also emphasises the Finnish – and Nordic – connection. For consumers, this symbolises professionalism and quality in the way that people work, and a people-focused mindset from production to delivery and after-service.

Nordic design is well known around the world, from interiors to architecture and lifestyle. UPM’s Finnish heritage is an important component in every paper it produces, and the company takes pride in the quality, technology and craftsmanship of each product. All this has been reaffirmed by the re-launch of the UPM Jetset brand.

UPM will continue to refresh its key copy paper brands in China over the next year. This will give frontline colleagues, like Eddie Chan, even more powerful brands to introduce to both old and new customers.

“People are talking about responsibility, and this is the perfect time to bring this message to the market. And UPM is just the right company to represent this. Our customers can make responsible choices with UPM,” concludes Chan.

Voice of consumers
Cai Yu is one of the end-users impressed by UPM Jetset’s new brand position. As the Secretary of the Board at a wind-powered electrical utility company, he was convinced not only by the message, but also by the new brand visuals.

“The environmentally friendly concept of UPM is aligned with our company’s pursuit of going green. Sustainability is a long-term environmental cause, and I hope UPM can continue to support it.”

Xie Jingling is familiar with sustainability-related certificates from his role as an employee at a certification organisation.

“FSC is a good certification system. Through FSC, I came to know UPM – especially the UPM Jetset brand.” He also praises the high quality of the paper: “For me, UPM Jetset is a symbol of high quality.”