ESSENTIAL OILS

MARKET REPORT

SPRING 2019

BLOSSOM FORTH!

Ultra International B.V.
Essential Oils, Ingredients, F & F

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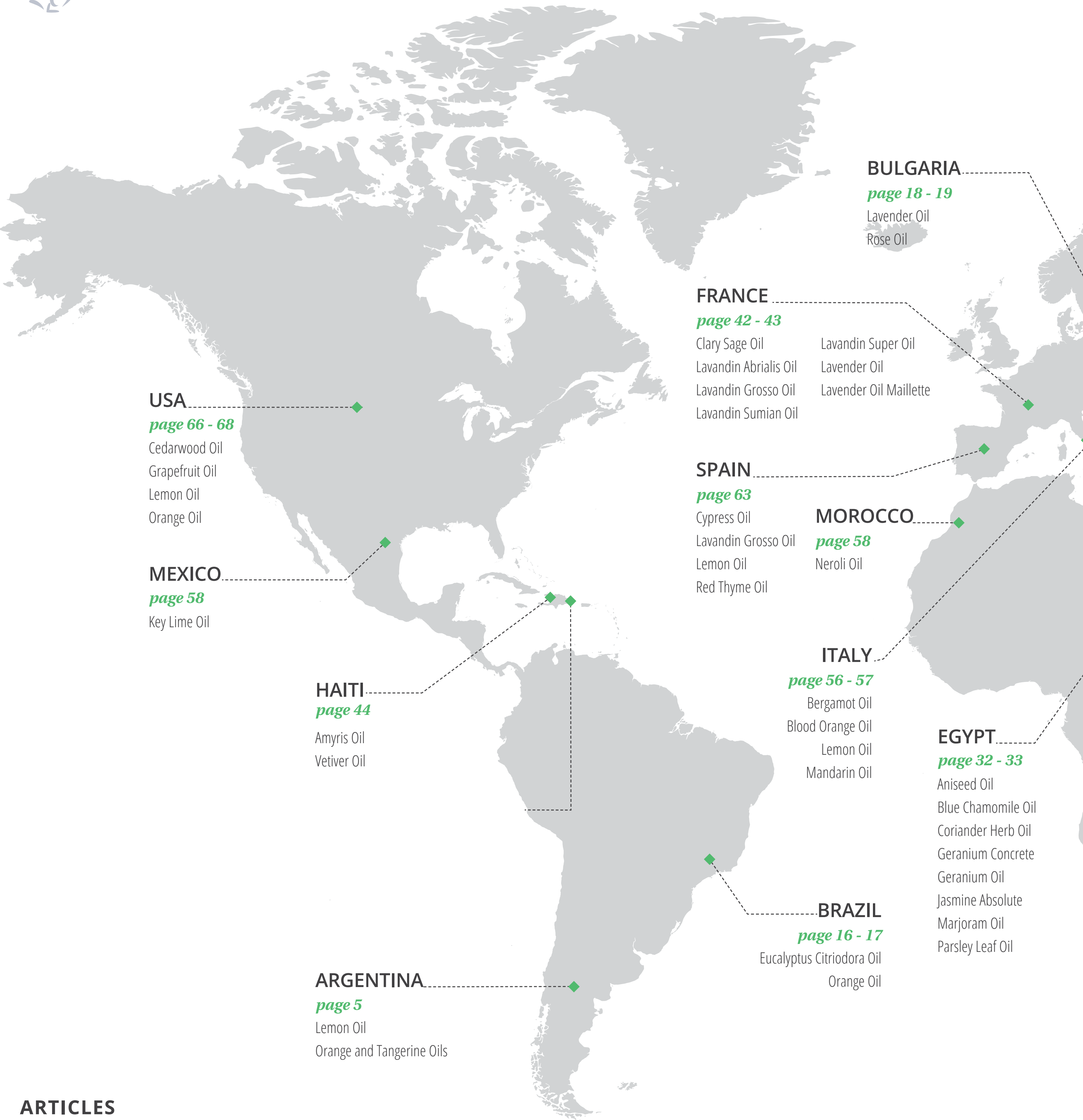

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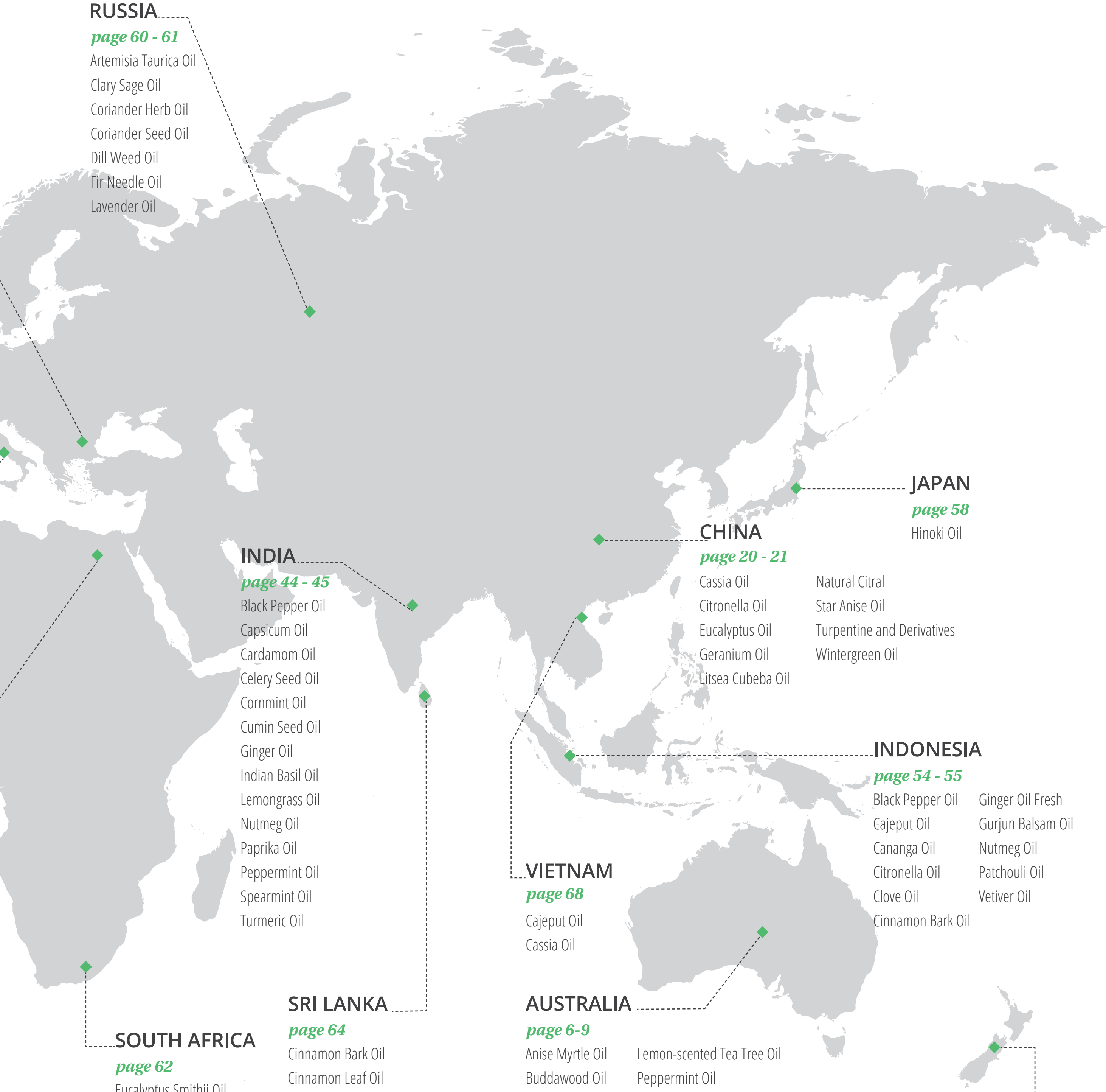
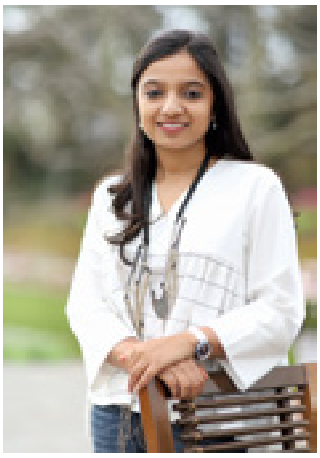




Hello everyone,

With aromatic whiffs of an action-packed 2018; and a *scent-illating* start to 2019, we are back with another encapsulation of what has occurred, and what is yet to come.

The naturals market has been quite encouraging. Citrus, living up to its zesty reputation, has created quite a stir with considerable activity. Prices have eased out since last year and hopefully this is a good buying opportunity. Sizeable changes in Brazilian and Florida production coupled with sliding demand for d'limonene and orange juice are impacting the market. Turn the pages for a fresh perspective and detailed reportage on citrus essential oils.

As winter bids adieu, the world revels in the arrival of spring. Nature too celebrates with fresh blooms and bursts of colour, and reawakening of life. With the same promise of continuing to infuse your lives with warmth and wellness, we present aromatic insights from the world of floral scents and essences.

Sustainability has always been of prime importance to us, but now takes on mammoth proportions as consumer interest too is mounting. We must be prepared for an upsurge in the use of naturals in the times to come. In this report, we feature vital industry challenges and the views of esteemed fellow stakeholders. As we ceaselessly look for solutions to glaring sustainability issues, and try to address them, we also explore environment-friendly alternatives. One such ingredient for the F and F industry are the terpenes. Find out the happenings for the two major sources of terpenes produced from pine trees and as orange by-products, in our specially curated terpenes article in this report.

Our unabated thirst to explore the mysteries of nature and unearth new sources of natural and sustainable raw materials was well-quenched with a field trip to Australia. This was organised by Golden Groves Naturals. We returned enriched with a firsthand experience of the operations of the plantations, in-depth knowledge about new botanicals from down under, and nitty-gritties of natural products of Australia that are making waves and set to grow by leaps and bounds. In fact, Australia is poised to be a global leader in naturals in coming years. Enjoy the glimpses of this educational trip as we relive our experience of the Australian Road Trip.

The clamour for organic, superior grade material gets louder by the day. It is a constant reminder of our own no-compromise pursuit to marry sustainability and purity. And our promise to create carefully-crafted, artisanal oils that are such an essential part of our lives.

Thank you, and have a great year.

Priyamvada Sanganeria
Director, Ultra International BV

LEMON OIL

Citrus limon L. Burm. F. *Argentina*

Argentina's lemon-growing areas experienced weather conditions conducive to a healthy lemon production. The estimate for MY 2018/2019 points to an improvement on fresh fruit production at 1.6 million MT, higher than last season's 1.5 million MT. Domestic consumption of lemons is an estimated 100,000 MT, remaining unchanged from the previous year. It was in 2017 that Argentina regained market access to the USA; and in 2018 exported around 10,640 MT of fresh fruit. Exports in 2019 exhibit an upward trend as Argentina recently opened up five new markets - USA, Mexico, Brazil, Vietnam and Indonesia. Driven by a robust supply network and positive price signals, the figures for lemon exports in 2019 are predicted to touch 290,000 MT. The depreciation of the Argentine peso in 2018 has made exports more competitive but this has been partially offset by rising interest rates and input costs, a reinstatement of export taxes and a decrease in export rebates.

New plantations are beginning to produce more fruit but fruit on mature trees seems to be around 20% less than last year. The expansion of lemon production is expected to lead a growth of lemon for processing to about 1.2 MMT as opposed to last year's 1.18 MMT. Lemon oil treads a steady path to command a firm demand. In comparison to last season, prices of oil have fallen.

USD 27.00 /kilo

MAJOR LEMON PRODUCERS - ESTIMATED PRODUCTION AND PROCESSING DATA (MT '000)

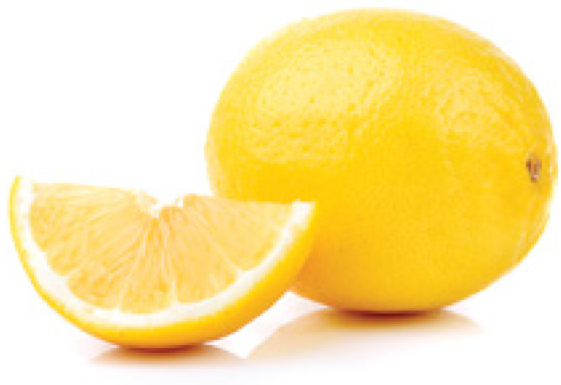
	2016/17		2017/18		Forecast 2018/19	
Countries	Production	Processing	Production	Processing	Production	Processing
Argentina	1450	1122	1500	1136	1600	1210
European Union	1534	284	1472	282	1617	326
USA	804	159	791	155	776	151
South Africa	430	115	460	127	480	130
Total	4218	1680	4223	1700	4473	1817

ORANGE AND TANGERINE OILS

Citrus sinensis , Citrus reticulata *Argentina*

In 2018/19 Argentine orange and tangerine productions are predicted to fall to 500,000 MT and 280,000 MT respectively, on expectations of smaller production and lower investment in grove management. As a result of lower production and reduced international competitiveness, primarily from South Africa, orange and tangerine exports are projected down to 50,000 MT and 30,000 MT respectively. These are unprecedented lows; significantly reduced due to challenging domestic economic conditions. The fall in supply and domestic demand has had a drastic impact on consumption; orange and tangerine consumption is forecast to fall to 230,000 MT and 150,000 MT respectively. Fresh oranges and tangerines for processing in 2018/2019 are estimated to fall to 223,000 MT and 100,000 MT, respectively, compared with processing in 2017/18 of 257,000 MT and 130,000 MT.

NA



THE
AUSTRALIAN
COLLECTION

ANISE MYRTLE OIL

Syzygium anisatum *Australia*

Anise myrtle oil is extremely rare and indigenous to Australia. It is considered the most superior quality of aniseed essential oil with heavy plantations found in New South Wales. The current season is witnessing unfavourable weather conditions, which has led to a decrease in production. However, the demand for anise myrtle oil continues to rise globally.

AUD 280.00 /kilo

A Rainbow Lorikeet enjoying the first day of spring (and some tasty aloe flowers) in Adelaide, South Australia

BUDDAWOOD OIL

Eremophila mitchellii *Australia*

The small figwort buddawood is native to Australia. It requires dry sand or soil to prosper, and that's why it flourishes in the desert areas of Australia. Buddawood oil is an economical and sustainable alternative to similar products in the market. While the supply of hexane extracted material from *Eremophila Mitchelli* was limited in the past, today consistent supplies are available. This has been made possible by the support of local authorities, which have aided the development of advanced steam distillation facilities. These new methods of production have resulted in a change of the oil colour. It is now a slightly lighter shade of brown than its original form. The current market showcases steady progress in sales and production, and a healthy rate of increase. Currently, the supply is running higher than the demand.

AUD 625.00 /kilo

CYPRESS OIL BLUE

Callitris intratropica *Australia*

Blue cypress, scientifically known as *Callitris Intratropica*, prefers the monsoonal parts of Northern Australia, including Northern Territory's Kakadu, Queensland's Cape York and Western Australia's Kimberley regions. Technically superior equipment is used to steam distil blue cypress oil from the chipped bark and wood of the tree.

Blue cypress oil is slowly and steadily capturing the market. It is extensively being used to replace vetiver, sandalwood and even guaiacwood in fragrances and cosmetics. This has led to an increase in the demand from the aromatherapy sector. The demand and supply equation of blue cypress oil is relatively stable, which has resulted in non-fluctuating prices.

AUD 550 .00 /kilo

EUCALYPTUS HORISTES OIL

Eucalyptus horistes *Australia*

Eucalyptus horistes oil is one of the most interesting products in the market. Its natural high content of cineol (90% min), makes it an attractive product. Though production currently is unable to meet the growing demand, work is being done to increase the production capacity to answer the shortage.

AUD 38.00 /kilo

EUCALYPTUS RADIATA OIL

Eucalyptus radiata *Australia*

The native Australian eucalyptus radiata is densely spread across central Victoria, through the mountain country of New South Wales and extends to the tablelands of south-eastern Queensland. Even northern Tasmania has a slight population of the eucalyptus radiata. It is a highly adaptable tree and can flourish in fertile and infertile soils with the assistance of good sunlight. The oil is extracted via steam distillation from the leaves and terminal branches. Eucalyptus radiata oil is witnessing an increase in demand, though the production has declined in Australia due to weather conditions. Golden Grove Naturals is working to answer the production shortage by getting involved at the farming level.

AUD 85.00 /kilo

FENNEL SWEET OIL

Foeniculum vulgare *Australia*

Sweet fennel is a small herb that can grow up to 2 metres. It is prominently found in coastal Tasmania. Its multiple uses in aromatherapy, perfumery, flavouring agents and therapy have made it a sought-after product in the market globally. This season has seen unfavourable climate conditions in Australia, which has led to a decrease in production.

AUD 240.00 /kilo

KUNZEA OIL

Kunzea ambigua *Australia*

The Australian kunzea is found prominently in North East Tasmania, the islands of Bass Strait and South Eastern Australian mainland. Also known as white kunzea, it is a large shrub growing 3-5 metres in height. It flowers in spring between the months of August and December. Golden Grove Naturals is working closely with farmers to develop this aromatic oil. However, the current weather conditions in Australia are not conducive to its growth. Thus, production is expected to increase slowly, over a period of time.

AUD 410.00 /kilo

LEMON MYRTLE OIL

Backhousia citriodora *Australia*

Lemon myrtle is one of Australia's newest and most exciting gifts to the essential oil world. The lemon myrtle tree grows up to a height of 66 feet. It prospers in warm and wet conditions and is indigenous to the rainforests of Queensland from Brisbane to the Atherton Tablelands. A small population of the tree can also be found in cooler parts of Australia. Lemon myrtle oil has seen a steady rise in demand, and to answer it Golden Grove Naturals has invested in the production of lemon myrtle in its Tucki Tucki farm. Unfortunately, weather has not been conducive to production, and a shortfall in production is expected.

AUD 550.00 /kilo

LEMON SCENTED TEA TREE OIL

Leptospermum petersonii *Australia*

The strong lemon scent makes the lemon scented tea tree oil an attractive skin care as well as cleaning product. The oil is extracted from a rounded shrub that grows up to 4 m in height in the areas of Queensland and New South Wales. The dry season has upset the plantations, and the overall production of tea tree oil in Australia is expected to go down. The global demand for the product remains high, which could lead to a rise in price.

AUD 165.00 /kilo

PEPPERMINT OIL

Mentha piperita *Australia*

Peppermint oil is a new addition to the Australian essential oils family. Golden Grove Naturals is working in close proximity with the farmers to aid in the development of the product. At present, Australia produces a low quantity of the oil and is not a major contributor in the global market. But the equation is expected to change in the coming years with a sustained rise in production.

AUD 65.00 /kilo

ROSALINA OIL

Melaleuca ericifolia *Australia*

Wild rosalina trees flourish in wet, swampy lowlands. Thus, it hardly comes as a surprise that New South Wales, Victoria and Tasmania are its prominent habitats. Its oil is extracted through steam distillation of the leaves, twigs, and branches. Rosalina oil is also referred to as lavender tea tree because of the gentle lavender back note. It is mostly used as a subtler version of tea tree oil with lavender tendencies. Rosalina oil has mostly seen a stable market, though unfavourable weather conditions in Australia may lead to a decrease in production.

AUD 350.00 /kilo (Southern)
AUD 410.00 /kilo (Northern)

TEA TREE OIL

Melaleuca alternifolia *Australia*

The tea tree is endemic to New South Wales and Northern Queensland. The harvest period starts in May and lasts till November. The tea tree generally grows up to a height of 2 metres, and takes around 12-15 months to fully mature. Unfortunately, due to the dry spell, the coming season does not look good for tea tree oil. The overall production in Australia is expected to take a hit, though global demand is increasing. This shortage of supply will result in an increase in price.

AUD 54.00 /kilo

SANDALWOOD OIL ALBUM

Santalum album *Australia*

Sandalwood album oil is extracted from rich heartwood through steam-distillation. Its aromatic, fixative and medicinal properties have made it a treasured product in the market. Currently, a lot of emphasis is laid on sustainable extraction of the oil. Sandalwood album has witnessed a decline in price due to availability issues and severe competition amongst the stakeholders.

USD 2900.00 /kilo

SANDALWOOD OIL AUSTROCALEDONICUM

Santalum austrocaledonicum *Australia*

Sandalwood austrocaledonicum is a highly sought-after and rare variety of sandalwood. It has a soothing effect that makes it a popular choice in body and skin care products. The price has remained stable over a period, though the demand for the oil has decreased slightly due to a decrease in the price of sandalwood album quality.

USD 2100.00 /kilo

SANDALWOOD QUEENSLAND OIL

Santalum lanceolatum *Australia*

Sandalwood lancealoatum is a desert tree endemic to central and southern Western Australia and South Australia. Sandalwood oil is harvested from the trees after they reach optimum maturity. In other words, unless the trees are 15-20 years old, they are not touched for oil. Australia has numerous long term plantations of sandalwood dating back to the 1990s, and thus has hectares of plantations ready to be used for oil production.

The oil is obtained through the process of steam distillation of powdered sandalwood. The butts and tree roots house the best oil quality. Sandalwood oil is known for its calming qualities, and helps clear the mind. It can have a massive appeal in the fragrance and aromatherapy industry due to its interesting qualities.

USD 1300.00 /kilo

SANDALWOOD OIL SPICATUM

Santalum spicatum *Australia*

Sandalwood spicatum oil is extracted from a rare species of sandalwood using the CO_2 method. It is found predominantly in south-west Australia. The shrub can grow up to 6 m in height and survive in drought and salty soil. The market for the oil is currently stable with no fluctuation in prices.

USD 1450.00 /kilo

Aussie ROAD TRIP
BYRON BAY

THE AUSTRALIAN ROAD TRIP
JOURNEY TO EXPLORE THE WORLD OF AUSTRALIAN ESSENTIAL OILS

Priyamvada Sanganeria, Ultra International BV

PROLOGUE

A field trip opens up opportunities to closely observe cultures, practices, and people. Our trip to Byron Bay in Australia from December 2nd to 9th, 2018 left us in awe of the hidden gems of the country. The trip was instrumental in exploring and understanding the exotic essential oils from the sought-after Australian market and shed light on their sustainable practices, and ground-breaking research.

The beachside town Byron Bay in New South Wales hosted us for a week. During the stay we visited Golden Grove Naturals (GGN) plantation, the Department of Primary Industries, leading researchers at Southern Cross University, local farmers, and wildlife sanctuaries.

Photo left: *GGN Tea Tree Plantation.* *Photo top right:* *GGN Presentation by Aaron Pollack.* *Photo bottom right:* *Sapling Plantation Drive by Delegates.*

DAY 1- ARRIVAL

About 175 kilometres south of Brisbane is the beachside town of Byron Bay. We were welcomed to this picturesque location on December 2, 2018 by Directors Tillman Miritz, Ravi Sanganeria and Aaron Pollack, whilst enjoying a round of drinks and canapés.

DAY 2 – EXPLORING GROUND ZERO

The second day of our trip was dedicated to a visit to the Golden Grove Naturals plantation. The dedicated team at Golden Grove greeted us as we arrived then embarked on the trail of Australia's original tea tree oil plantations, and the more recently established new plantations. While the new plantations were dedicated to honey myrtle, and two new strains of tea tree, the forthcoming ones were prepping to grow manuka, kunzea, and lemon-scented tea tree oil. We were taken through distillation to crop warehousing, in-house nursery, quality control, and even a tractor ride. This was followed by an invigorating interaction with ***Kate Steel*** from the Lismore Council, and koala conservationist, ***Angie Brace***. Today, though koalas abound in Australia, they are threatened by habitat loss as a consequence of land-clearing for agriculture. One of GGN's goals is to preserve koala habitat to revive the koala population. We also had the good fortune of listening to ***Dorene Petersen***, Founding President of the American College of Healthcare Sciences (ACHS). With over 35 years experience in clinical teaching, aromatherapy, and other holistic health subjects, Dorene is a respected veteran in the field. Her lecture navigated through research findings and the biological potential of Australia's essential oils.

Photo: *Exploring Lemon-scented Tea Tree*

Photo: *Tractor Ride in GGN*

DAY 3 - DECODING THE SCIENCE OF AUSTRALIA'S NATURAL WONDERS

Apart from visiting plantations to gather first-hand knowledge, the tour also included interactive sessions with Australia's leading researchers in the field.

Our first stop on day 3 was the Department of Primary Industries in New South Wales. They are a government agency, which GGN partner for the propagation of new essential oils. We had the pleasure of meeting the CEO ***Ross Dickson***, and expert ***Kath French*** to understand the growing potential of Australian essential oils.

Tea tree is one of Australia's most profitable gems. We explored the Aboriginal farms that grow tea tree.

Lemon myrtle, one of the biggest new attractions, was also on our agenda. ***Gary Stibbard***, a local owner, took us around his plantation and distillery.

Photos: Visit to Department of Primary Industries, New South Wales

DAY 4 – THE RESEARCH EXPERTS: SOUTHERN CROSS UNIVERSITY

The fourth day of our trip was spent understanding the people and organisations that have invested heavily in the growth of the Australian essential oil market. We began this journey with *Southern Cross***,** which evolved as a fully-fledged university in 1994. Since then research has been one of its core functional areas. The university has undertaken numerous studies and activities in the development of Australian essential oils. Soon after inception, the university's first major research centre dealing in plant conservation genetics was established. It caught attention instantaneously, and received significant funding for genetic research in tea tree, rice, barley, and wheat. The establishment of the Australian Tea Tree Oil Research Institute followed.

Southern Cross University works with the best in the field to deliver ground-breaking research. We spent an afternoon interacting with some of them. ***Associate Professor Terry Rose,*** an expert in agronomy and soils, was one of them. His work primarily focuses on sustainable agricultural production. As part of his research, he is involved in extensive field trials to collaborate with key farmers or focus groups. This is followed by a controlled environment or glasshouse study to resolve any underlying mechanisms. ***Dr Ian Southwell***, who has published over 50 papers on Australian essential oils, is also a regular at the university. He is also the Chairman of the Essential Oil Committee of the Standards Association of Australia.

Photos: Overview of SCU plant breeding capabilities with Merv Shepherd

DAY 5 – THE SUCCESS STORY OF LOCAL FARMERS

Interacting with locals, who have harnessed Australian wonders successfully, was the best way to spend day 5 of our field trip.

We first met ***Anthony Hotson*** of Rainforest Foods, walked around his farm, and chatted about native ingredients. We were all excited to explore these exotic botanicals such as Davidson plum, anise myrtle, cinnamon myrtle, finger lime and lilly pilly. Our next interaction was with Aboriginal grower ***Rebecca Barnes***. She enthusiastically narrated stories about the medicinal properties of Australian ingredients. We tasted some products that used these ingredients such as Davidson plum jam and lemon myrtle tea.

The Farm, Byron Bay, has transformed into the largest food tourism business in Australia in just three years. We went on an exploration tour of the farm to fathom its secret of success, and learnt that they grow, feed, and educate.

After our highly enlightening visits, we turned our attention towards ***Mark Webb***, a leader in the field of aromatic medicine. This gentleman strives to introduce the world to the wonders of Australian flora. Mark focuses on Australian aromatics, aromatic cuisine, aromatic medicine, aromatic chemistry, pharmacology and toxicology, internal and external dose forms. In 2000, he authored '*Bush Sense: Australian Essential Oils and Aromatic Compounds.*'

Photo top: Exploring medicinal properties of native ingredients
Photo bottom: Tour of Rainforest Food Plantation lead by Anthony Hotson

Photo left: Interacting with kangaroos at Currumbin Wildlife Sanctuary. Photo right: Cooking Demonstration by Samantha Gowing at Brookfarm Macadamia Farm.

DAY 6 - THE MYSTIQUE OF AUSTRALIAN ESSENTIAL OILS

We started day 6 of our trip getting to know the Australian fauna. Some of the most interesting species of wildlife reside down under. We spent a fun morning meeting, feeding, and being photographed with kangaroos, wombats, and koalas at the Currumbin Wildlife Sanctuary.

From wildlife we shifted our focus to Australia's indigenous nut, macadamia. It was a novel experience to crack fresh nuts from the Brookfarm Macadamia Farm and savour their refreshing flavour. Brookfarm is one of the most successful operations in Australia. In November 2000, Pam Brook took the plunge from being a dentist to co-founding Brookfarm Macadamia along with her husband Martin, an ex-film producer. We spent quality time around the property, walking down the rainforests, and learning about secret ingredients used by the owners in their gin making process. We were lucky enough to taste the concoction brewed from the 12 secret ingredients, and enjoyed a live cooking demonstration by Australia's leading wellness and spa chef, Samantha Gowing.

DAY 7 - THE FINAL LEG

The Byron Bay Lighthouse greeted us, as we got a glimpse of Australia's marine life, spotting dolphins and turtles. And a trip down under would be incomplete without some surfing lessons to complement the serene surroundings.

The field trip helped us *Discover Australia* for its treasure trove of wellness. During our exploration, we delved deep to understand the conditions and techniques that aid the development of some of Australia's natural wonders. Soaking up the natural beauty of Australia, we concluded the tour on December 8th 2018. Our week-long interactions with experts in the field and our first-hand experience helped us understand the Unique Selling Proposition of this hotbed of essential oils.

Ultra International B.V.
Essential Oils, Ingredients, F & F

CORIANDER OIL

The herb that harvests smiles

www.ultranl.com

Pavonia strictiflora tropical brazil flowering plants

The political and economic climate is changing in Brazil. A new Brazilian president took office in January 2019, representing a switch to considerably more liberal economic policies. This is likely to lead to greater privatisation and a reduced role of the government, leading to an estimated GDP growth in 2019 of 2.5%, alongside slight increases in inflation and interest rates. A more efficient government and business environment should help reduce production costs, while economic growth would expand consumption of fruit and juices. Any devaluation of the exchange rate would make Brazil more internationally competitive, but currently analysts expect the current exchange rate of around US 1.00 = 3.80 reals to continue. But increased foreign investments and reforms could push up the value of the real.

Currently, Brazil's citrus oils such as lemon and Tahiti lime oil and citrus by-products such as orange terpenes and citrus terpenes like d'limonene are not showing much movement. This is because there is a general reluctance of buyers to purchase the current material offered at discounted rates.

EUCALYPTUS CITRIODORA

Eucalyptus Citriodora *Brazil*

Brazil is experiencing copious rainfall and this will continue till the end of the rainy season i.e. March. Consequently, production is minimal. Demand has seen a noticeable spurt in the last two years and there is no difficulty in catering for it because of long stocks. Also, prices have spiralled to a small high; making the farmer community jubilant.

USD 20.00 /kilo

ORANGE OIL CP

Citrus sinensis Brazil

The USDA forecast for the new Brazilian crop for year beginning July 2019 is estimated at 435 million boxes. This is a marked improvement, representing an increase of 50 million boxes or an increase of 13% compared to the current year, 2018-19. These are general estimates, and a better indication will be available by the end of March since the current orange season closure is June 2019. The recovery of citrus trees and favourable weather patterns are the main reasons behind the improved forecast. The current crop estimate has been revised downward from 393 to 385 million boxes. This is because the fruit size is smaller and there was above-average droppage in the key growing areas. This crop was stretched with some fruit coming in from the second and third blooming. The disappointing aspect was that the extra fruit did not meet required specifications and consequently, orange oil production fell short of original projections.

The research group Fundecitrus, which represents Brazil's largest orange processors, reported the 2018-19 crop in the two main regions of São Paulo and Minas Gerais of 285 million boxes (of 40.6 kg each), a reduction of 30% from the 2017-18 crop, Meanwhile the USDA zeroed in on 280 million boxes. Though the crop has been markedly smaller, the trees have experienced less stress and are in good health to produce more fruit. The weather was conducive, with adequate rains and ideal soil moisture during the blossoming period. Considering these favourable factors, USDA predicts a very good crop rising to 330 million boxes. Hopes for a better crop are being pinned on the next season, which will begin in July 2019.

According to CitrusBR, Brazilian orange juice production should total just 874,000 MT in the 2018-19 crop year that ends in June, a 27.5% decline from the previous season, although industrial yield was better than the previous year. Most of the big players have already finished processing and are now involved in the preparatory maintenance for next season. January brought in some exceedingly high temperatures in the citrus belts, and this affected the processing pace considerably. Excessive rains followed this during the last week of processing. Consequently the numbers for fruit crushing were greatly reduced. The market believes that global Brazilian orange juice inventories will tighten by the end of this season in June 2019.

With regard to orange processing, the USDA estimates that 264 million boxes will be processed during 2018-19, compared with 395 million boxes in 2017-18. The preliminary estimate for 2019-20 is 313 million boxes based on the substantial forecast growth in orange production. Brazil dominates global orange juice exports but faces the challenge of falling global demand alongside increased international competition from countries such as Mexico.

The higher production forecast has led to a softening of both orange oil and terpene prices, which are at their lowest for 5 years. Demand for both orange terpenes and d'limonene has fallen, in part because of substitution of dipentene in certain end uses as well as efforts to reduce dependence on d'limonene because of its price volatility and reduced supply over recent years.

USD 8.00 /kilo

BRAZIL- ORANGE PRODUCTION AND PROCESSING DATA

Marketing Year USA	*2016/17*	*2017/18*	*2018/19*
Marketing Year Brazil	2017-2018	Current Crop 2018-2019	Initial Forecast for New Crop 2019 -2020
Production in Million Boxes	512	385	435
For Processing in Million Boxes	395	264	313

LAVENDER OIL

Lavandula angustifolia *Bulgaria*

Bulgarian lavender was not able to meet expectations last season. The crop saw a 50% decrease in production, with only 100-120 MT being recorded. This has resulted in a difficult situation for oil supply. Last season's stock of lavender oil was mostly sold out, although some producers may have small quantities of the product remaining.

Euro 120.00 /kilo

ROSE OIL

Rosa damascena *Bulgaria*

The price of rose oil is expected to remain stable. While most producers successfully sold their produce last season, a few with large quantities in stock are offering the oil at a reduced price. Unfortunately, customers are wary of the authenticity of the oil at this price.

A good crop is expected. And, with new rose fields added in the last few years, rose blossoms will fetch a price similar to last season without any significant increase. Established producers purchase rose petals at 1.34 Euro/kg. Melting snow is a great source of water and considered good for the crop, but this winter has seen reduced snowfall. However, adequate rain is expected in spring to water the rose gardens.

Euro 7200.00 /kilo

There has been quite a bit of activity on the Chinese front. The USA imposed an additional 10% duty on certain Chinese aromatic chemicals. Not only has this development substantially impacted the Chinese essential oil trade, but has also had repercussions in the US markets, which still await correction in spot pricing.

CASSIA OIL

Cinnamomum cassia *China*

Cassia is not faring too well in terms of demand, so it is a tad challenging to predict prices for 2019. It still remains unique and a class apart from the other Chinese essential oils so prices will not have too big a plunge in 2019. January saw prices dipping. It is nearing season's end and output too is gradually dwindling. During the Chinese New Year holiday, domestic logistics players ceased their operations. Factories stopped processing, thereby limiting inventories, though it did not significantly affect prices. Considering some factories are still in the process of accumulating raw materials to fulfill orders, logistics could not be effectively undertaken and there continued to be a dearth of oil; price appreciation is but natural. Between 2012 and 2017 Chinese annual cassia oil exports showed a continuous downward trend falling from 526 MT per year to 280 MT. However, in 2018 estimated cassia oil exports rose to 339 MT.

USD 35.00 /kilo

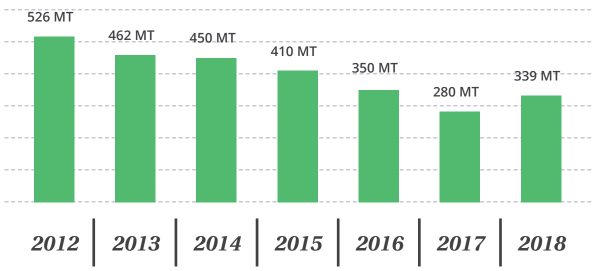
CITRONELLA OIL

Cymbopogon winterlanus *China*

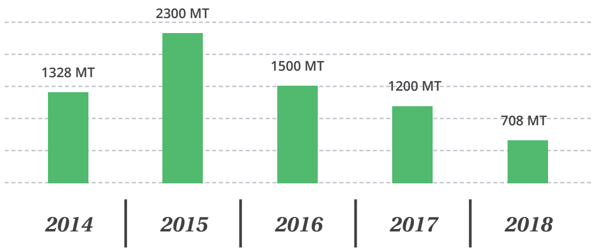
Going by initial reports, the rains have lashed the plants and so the current crop is expected to be quite small. Most processors are unwilling to enter into negotiations, as they believe that prices will steady out in the near future. Currently, citronella is in relatively short supply; and prices are skyrocketing. Production was small, around 400 MT in 2018 although some sources put it higher. Nevertheless, it was substantially below 2017 levels, and prices are very high. Stimulated by high pricing, production may surge to reach around 500 to 600 MT. With oil from neighbouring Vietnam buoying supplies, the high prices were somewhat alleviated. However, the market seems to be perturbed since there is almost no oil to be found. On one hand, there is hardly any new oil from the planting areas; and on the other hand, carryover is getting limited. Those who are holding stocks are reluctant to sell in anticipation of higher margins. The situation was expected to ease out after the Chinese New Year holidays.

USD 28.00 /kilo

ESTIMATED EXPORT QUANTITY OF CASSIA OIL



ESTIMATED PRODUCTION OF CITRONELLA OIL



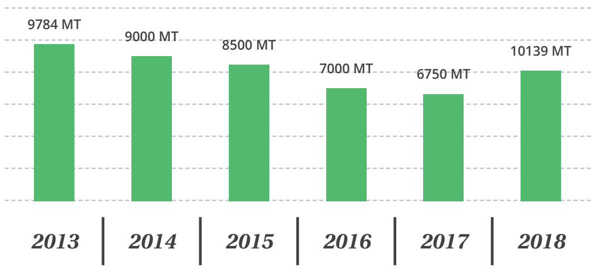
EUCALYPTUS OIL

Eucalyptus globulus *China*

Early December witnessed some slackening of prices, which however has been reversed. The December stocks have been consumed. With the Chinese New Year, prices firmed up. Now, there is a probability of reduced availability and rising prices since the largest crop season has ended. China's eucalyptus oil production in 2018 was estimated at just over 10,000 MT compared with 6,750 MT in 2017. Eucalyptus oil 80%, which had disappeared from the markets, has made a re-entry. Currently, the eucalyptol 99.5 % supply situation has eased as well.

USD 24.00 /kilo

ESTIMATED PRODUCTION OF EUCALYPTUS OIL



GERANIUM OIL

Pelargonium graveolens *China*

November marks the end of the geranium crop season. Availability is reasonable while demand is slack. There was marginal easing of prices in December following the sustained increase in October and November. 2018 saw a good crop size of 70 to 80 MT, an increase from the previous year. The other economic plants in China's key producing region did not fare well in terms of pricing, so the farmers are likely to enlarge their geranium plantations in 2019. This year's crop is forecasted at around 100 MT, so prices may fall when the crop season starts in April 2019.

USD 205.00 /kilo

LITSEA CUBEBA OIL

Litsea cubeba *China*

The crop season has passed and there are some stocks left in farmers' hands. There is weak demand and prices are stable, albeit very high. Reports of dwindling carryover stocks are coming in. With the new harvest not expected until the end of August or September, the situation remains unchanged.

The distillation of *Litsea cubeba* creates various waste products. The cost of disposing the waste is high, under China's strict environmental protection legislation. In 2019, environmental policies have become stricter, and could lead to some operations ceasing production. In the light of this development, users of this oil should ensure that they have access to adequate supplies in advance.

USD 36.00 /kilo

NATURAL CITRAL

Litsea cubeba *China*

Low demand has led prices to rise and remain there. Carryover stocks are diminishing fast and the new crop is not due until the end of August and September. This trend is expected to continue till that time.

USD 49.00 /kilo

STAR ANISE OIL

Illicium verum *China*

The distillation period has ended. The supply of oil from the fruit is tight this year and collection is hard. Oil from the leaf can be distilled all year round but is now at an end. Demand and price are in a balanced equation, and predicted to remain this way in the current situation.

USD 21.00 /kilo

TURPENTINE AND DERIVATIVES

As the accompanying article on Terpenes illustrates, China is a very important, if declining, source of turpentine and terpene derivatives. Towards the end of 2019, reports from the growing regions of Guangdong, Jiangxi, and Fujian suggested marginal decreases in prices for gum turpentine, as several processors sold at reduced prices in order to generate liquidity for end of year loan repayments. However, prices for derivatives were still in the process of firming. Gum rosin and gum turpentine are jointly produced products, approximately in the ratio of 4:1. The fall in gum rosin demand has put upward pressure on gum turpentine prices, which have risen to their late 2018 levels. They are predicted to rise further, suggesting possible further upward price pressures on terpenes.

NA

WINTERGREEN OIL

Gaultheria procumbens *China*

The prices that were offered to farmers were so abysmal that they were discouraged from planting wintergreen. Therefore very little has been produced. Though the prices are showing signs of firming up, stocks are depleted. Riding on a weak demand, output has been low and consequently, supplies too are limited.

NA

SUSTAINABILITY IS TRENDING IN 2019
IS THAT A GOOD THING AND HOW DOES THAT CHANGE THE FIGHT?

Eddie Bulliqi

Summary: Growing consumer interest in sustainability is giving birth to ideas and products that could be a threat to the naturals industry. There is no need to fear – this is a huge opportunity to show the world why naturals matter and how they could make an impact.

Over the last decade, sustainability has gone from boring corporate jargon to a must-have Instagram hot topic for influencers and business people alike to shout about; albeit, one from which confusion still flows in rivers of alternative facts. Definitions may vary, but all understandings of what sustainable living should be prophesy a future where the things that are alive on earth at the moment can keep on living, live happily, and live for a long time. Inevitably, people, money, and nature are involved in these visions – sprouting policy that stimulates local economies, safeguards health as well as jobs and ensures productive and good quality growth conditions within the world's variety of ecosystems.

The World Commission on Environment and Development explicate sustainability as *'a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations'* whilst the United Nations, back in a 1987 report, termed it as *'a balancing act … [meeting] the needs of the present without compromising the well-being of future generations'*. [1] Finally, the public, particularly the young global public, are getting behind these ideas.

That said, there is also cause to question the direction today's cultural landscape will pull the fight for sustainability and what new threats it puts up for businesses in general, and businesses in the fragrance industry in particular. This essay offers a scrutinising overview of what challenges lie ahead for players in the field of natural oils (and by extension F&F houses and brands) in terms of sustainability, addressing in turn which opportunities must be seized today to capitalise on sustainability's newfound fame on social media.

LANDSCAPE

As of the beginning of 2019, sustainability is cool for young people – a Masdar report presented to the United Nations Climate Change Conference in 2016 found that 40% of Gen Z (those born between 1995 and 2015) report climate change as their top priority whilst 81% believe the private sector should lead the way in shifting to cleaner technology (as reported by Thrive Global). [2] This is having a notable impact on purchasing habits – Fuse Marketing report that 26% of Gen Z have boycotted a company that supports issues contrary to their own whilst Business News Daily states that *'consumer interest in these principles could create huge economic opportunities for businesses, with a value of up to $12 trillion by 2030'*, following estimates from the Business & Sustainable Development Commission. [3]

As a result of this sea change in priorities for tomorrow's biggest consumer group, sustainability is no longer solely the domain of good-willed start-ups and NGOs; the largest companies in the world have acknowledged its mainstream currency and have invested time and money into the philosophy of sustainable production such as L'Oréal who have committed to a 60% reduction in water consumption per finished product by 2020 from a 2005 baseline. [4]

There is no doubt that the change of storyline that front-line consumers are asking for, exemplified by the recent youth demonstrations in Belgium (featuring tens of thousands of children that skipped school to protest against political complacency for climate change), are a positive step towards practice change for those that ardently support sustainability initiatives. [5] There is a pronounced modulation from the more radical and ideologically motivated calls for a fantasy 'green' world in the 1990s, arguably out of touch with both the cultural mood and science of the time, to a more measured evidence-based strategy that demands full transparency of corporate intentions and responsibilities with real results, not just marketing. All of this has been happening while some major politicians and opinion-makers still deny the existence of global warming, despite overwhelming evidence of its existence.

There is a distinct edge of narcissism about the neo-sustainability movement. It is certainly a little bit about helping the world, but it is also a lot about egos and company wallets. People do want to be involved, but they also want to be able to share their involvement on Facebook, and they want faces and figures to go along with their on-show altruism. This changes the game and how it is played. The eco conversation and also eco business will go to the companies that not only act ethically and fruitfully in sustainable endeavours but those that also communicate their efforts clearly, confidently, and with an element of participation to rouse followers' hearts and pockets.

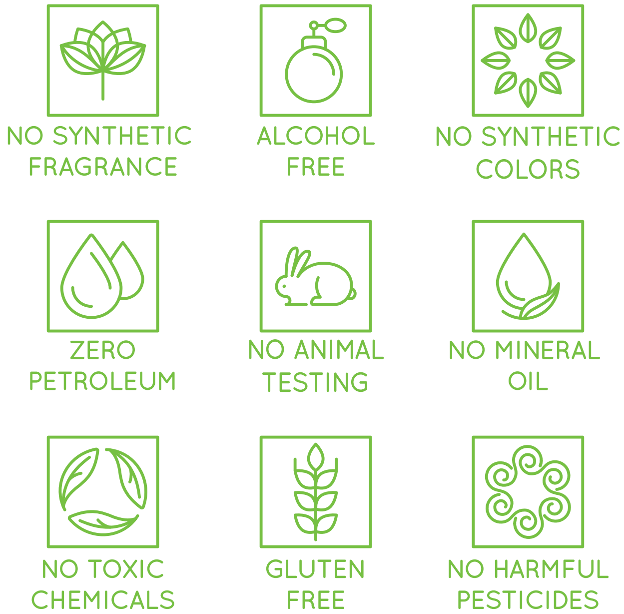
CHALLENGES

On the flip side, greenwashing is still a problem – the act of *'falsely conveying to consumers that a given product, service, company or institution factors environmental responsibility into its offerings and/or operations'*, in the words of Scientific American. [6] On top of that, it is difficult even for experts to work out and agree on what truly is the most sustainable path for a production process, let alone for everyday consumers to filter all the information bombarding them and make an informed choice. The current vegan lifestyle trend is synonymous with sustainability but even this could change soon. Take recent analysis from freelance journalist Tony Naylor writing in the Guardian about the food industry from an article entitled *'Why everything you know about sustainable eating is probably wrong'*:

Pre-shipping, the carbon created by a litre of semi-skimmed [milk] is far higher than that of almond milk … *"But what people don't know is the environmental damage almond plantations are doing in California, and the water cost. It takes a bonkers 1,611 US gallons (6,098 litres) to produce 1 litre of almond milk,"* says the Sustainable Restaurant Association's Pete Hemingway.

Over 80% of the world's almonds are grown in California, which has been in severe drought for most of this decade. Hemingway describes a situation in which farmers are ripping up relatively biodiverse citrus groves to feed rocketing demand for almonds, creating a monoculture fed by increasingly deep-water wells that threaten state-wide subsidence issues.

One must then decide, what is more important - CO_2 emissions, water wastage, land use and biodiversity, plastic and chemical pollution, or the livelihoods of almond farmers? It is not easy to reach the balance that sustainability requires.



The same problem potentially lies ahead for the naturals industry. Natural perfume and flavour materials are equated with respect for the earth and its atmosphere, but there is a risk that direct-to-consumer marketing for synthetic alternatives will be persuasive enough to initiate a rapid cascade in opinion towards eco-friendly chemicals over labour-intensive naturals. A 2016 piece by journalist Alexandra Pechman offers that

The trend toward a minimalist aesthetic in fragrance can, however, be more harmful than it appears, particularly when it comes to flowers. The struggle major companies face is how to sustainably produce what is inherently an unsustainable product, especially as consumers demand more and more raw materials. [7]

A 2015 research paper by scientist Torsten Kulke looked at work from the Research Institute for Fragrance Materials (RIFM) that assessed the sustainability of *'fragrance raw materials, two of which are petrochemically derived, two of which are based on renewable feedstocks and one of which is a natural essential oil, namely patchouli'*, reviewing water use and global warming CO_2 equivalents per kg of fragrance material. [8] Analysis showed that '*patchouli's footprint is one and three orders of magnitude higher than comparable fragrance materials obtained from renewable or petrochemical resources, respectively'*. The principal reason for this was the high water usage from crop irrigation and steam distillation.

But does that matter? And does it matter more than the local jobs and culture that would be lost if science labs ruled over farms? What is more sustainable – an amazingly 'green' synthetic product that helps only a handful of scientists or a natural commodity that enables fringe communities all over the world to profit from their environment? If a chemicals laboratory employs many local people with good salaries, but land is left barren and agriculture ignored, how does that affect an agricultural country's GDP or diversity of its flora and fauna? Kulke asks the same questions in response to the data, arguing that

> *Fostering income, education and production efficiencies improves livelihood resilience of these rural communities, which in themselves often have far more sustainable living patterns than those in industrial or urban settings. Here lies the biggest opportunity in sustainable natural production, sharing the socioeconomic value and encouraging communities to maintain overall more sustainable living habits versus their industrial peers … the fragrance industry is about emotions; thus, natural feedstocks, selected qualities and defined origins play a big role in communication strategies for consumers, customers and NGOs alike … In the global context, the fragrance industry is comparatively small, with an estimated annual consumption of 500,000 metric tons of fragrance materials, representing about 0.0033% of global crude oil output for its manufacture.*

> *“Sustainable” means different things to different groups...*

“Sustainable” means different things to different groups, reflecting their commercial, environmental and socio-economic priorities. Over the past decade we have seen many initiatives by both the private and public sectors, including NGOs and civil society stakeholders, aimed at making essential oils and other natural ingredient production more “sustainable”.

- To some it is providing growers with a more attractive and stable income by raising productivity and capacity
- To others, it is improving both the global and local environment through agro-forestry, organic certification, reducing negative impacts on biodiversity, enhancing carbon sequestration, and soil and water conservation
- And for others, it is ensuring commercial longevity by facilitating a secure, consistent, traceable, ethical supply of high-quality product

SOLUTIONS

At the end of the day, it has to be taken into account that sustainability is a very emotional topic. There may be readers that scoff at some of the ideas presented here, or others that praise them. Ultimately, this is a positive – achievement only takes place with enabled minds. If you are a naturals producer, there is a big opportunity to start stating the case that naturals are the only way forward for sustainability in the fragrance industry. To prove this to customers and end consumers alike, producers must take on-the-ground action, giving agency to the very bottom of the supply chain and those that are affected the most from climate change and pricing structures – the farmers themselves. It is of no use talking about the new climate groups your company has just enrolled in if there is not one extra shovel, greenhouse, or recycling bin on the local field.

Sector and industry stakeholders would benefit from a systematic assessment of their commercial, environmental and socio-economic priorities to try to establish what greater sustainability means and how it can be achieved for them and their business. Above all, sustainability starts with yourself – your personal habits and way of approaching life day-to-day. By discouraging greenwashing and committing to real changes in policy as opposed to just Facebooking about them, the naturals industry will be able to cement itself as the true option for a sustainable fragrance product that is also beautiful to the nose – hitting all three essential sustainability marks with excellence: economy, people, and environment.

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AARON POLLACK – CEO, GOLDEN GROVE NATURALS, AUSTRALIA

What does the term sustainability mean to you?
For me, sustainability equals sustainable development. It is a balancing act, managing economic and social development whilst maintaining consideration for the environmental effect. I consider business sustainability as being critical to business longevity, by being considerate to the way the business operates, being socially and economically responsible as well as considerate to the impact it has on the natural environment.

What future problems can you foresee if you and your partners do not take sustainability into account?
Given the ease and open access to digital and social media, poor business approaches can bring about swift and significant negative reactions which could affect the value of the business and partner goodwill.

Why do you think the world is more interested in sustainability today overall?
With global population growth, the demand for resources is increasing. This increasing demand has impacted significantly on the environment. Another result has been the increasing ease of access to media and education. People now want to see sustainability in action, particularly from businesses.

DORENE PETERSEN - FOUNDING PRESIDENT OF THE AMERICAN COLLEGE OF HEALTHCARE SCIENCES

What types of sustainability initiatives would help your business?
Number one – we would like to see financial incentives and advances provided to farmers to gain organic certification and in return be guaranteed a supply of Certified Organic Oils. Two - develop a 'Best Green Companies' for IFEAT members. Three - share the benefits of the B Corp mission across the industry through presentations and conferences. And four - develop a Bachelor of Science in Sustainable Living with online classes and an MBA in Sustainable Business.

What threats make sustainability important to act on now?
Most notably for our industry, a reduced and inconsistent supply of quality natural raw materials; reduced supply of certified organic pesticide-free essential oils; increased incidences of extreme weather; global warming; oceans warming; reduced drinkable water; lack of arable land; reduction of the workforce in farming essential oils; and more antibiotic-resistant infections.

Who is the most vulnerable to climate change?
Globally it is one world, one planet, and it is all interconnected. But during my most recent trip to New Zealand and Australia, everyone was concerned about global warming. The oceans surrounding New Zealand and Australia are two degrees too warm right now, creating an adverse pressure system resulting in a very cold and wet summer in New Zealand and very intense heat in Australia. Ninety wild horses just died in the middle of Australia - imagine the other animals, birds, and insects we don't hear about, let alone other plant species or indeed people.

Interviews

VAIBHAV AGGARWAL - MANAGING DIRECTOR OF NOREX FLAVOURS PRIVATE LIMITED, INDIA

Why is sustainability useful for you?
Sustainability is an integrated approach for us, making sure that whatever resources we are taking from Mother Nature and the community, a portion of that is being invested back into them, maintaining an equilibrium in socio-economic impact. We try to ensure that with any essential oil we are using, we also are growing the local community and benefitting the environment, ensuring goods continue to be produced in the long-term.

Have there been situations in your professional history where you have encountered an ethical dilemma in which profits were in direct tension with the long-term human or environmental impact of a policy or action?
Many times. I think the best approach is to sit with your customer and explain the situation to them honestly. It moreover depends on personal preferences. At Norex, we have always aimed for long-term benefits rather than going for short-term gains.

Who has the power to exert the greatest change in the industry regarding sustainability?
The consumer has the power, with the most at risk being the middlemen processors. There is great competition because some customers are accustomed to false sustainability claims from other suppliers.

EUCAFOREST, SOUTH AFRICA

What more can we do regarding sustainability?
Sustainability practices can still be adopted much more widely in our industry. The risks of this not happening are both internal and external to the industry. Potential internal problems include product shortages that last two to three years, rather than just one season. The external risk is increased global warming and increased poverty.

Your sustainability prediction for the future?
The profile of the sustainability issue will be more and more visible. Greater numbers of people from much more diverse cultures are now understanding the connection to the global environmental and socio-economic developments and what needs to happen. Awareness is increasing that sustainable farming and production practices – or the lack thereof – are connected to some of the larger issues we are dealing with as a global community.

What is the sustainability opportunity today?
All role players in our industry have the opportunity to increase their level of sustainability practices. This is an on-going effort – but the cumulative effects of these better practices should not be underestimated. End users can play an important role by requiring sustainable supply, but a critical piece is that increased sustainability practices almost always have a price tag. That cost increase is often pushed back to the farmer. Sustainable farming practices must be rewarded by acceptance of reasonably increased product prices.

PLANT THERAPY, USA

Is sustainability good for your business and do you actively want to be sustainable?
Yes, it is a necessity in our business. Because essential oils are such precious resources used in many different industries, it is important that we as a company are actively looking for ways to be more sustainable and respect the resources we are using. Essential oils come from plants and plants take time and large areas to grow; we must use the plant material and the farmlands alike to their fullest potentials.

Can you see any effects from a lack of sustainability?
In the essential oil industry, we have seen more adulteration because it is harder to purchase pure oils as they are becoming less available. When it starts to directly impact our everyday lives, people start to notice.

What scares you about resource management today?
Farms are providing work for hundreds of thousands of people and if we use more than we can produce then those farms could possibly go away. And if there isn't product to purchase, then there isn't product to sell which hurts the companies selling the products as well as the consumers.

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UltraOrganics

True Conviction

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Blooming cacti and other succulent plants, Egypt

ANISEED OIL

Pimpinella anisum L. Egypt

Laden with medicinal properties, aniseed oil is a popular product in the market. The new crop of aniseed is available in the market.

USD 115.00 /kilo

GERANIUM OIL

Pelargonium graveolens Egypt

The current market situation has led to fluctuating prices, and they are expected to rise further.

USD 88.00 /kilo

BLUE CHAMOMILE OIL

Matricaria chamomilla Egypt

Blue chamomile oil is witnessing a slow, but steady increase in price. This can be attributed to the short supply of acceptable quality of the oil. The price rise is not expected to cease anytime soon. These prices are higher compared to previous seasons.

USD 660.00 /kilo

JASMINE ABSOLUTE

Jasminum grandiflorum L. Egypt

Jasmine absolute experienced an increase in cost this season, due to the rise in the price of petroleum products, hexane, water, electricity, and even salaries of workers.

USD 2500.00 /kilo

CORIANDER HERB OIL

Coriandrum sativum L. Egypt

There is a stable supply of coriander herb oil in the current season.

USD 130.00 /kilo

MARJORAM OIL

Origanum majorana Egypt

Currently, there is a stable supply of marjoram oil in the market. But there are indicators that signal limited cultivation of the next crop, due to low demand in the market for the oil as well as dry leaves of the plant.

USD 58.00 /kilo

GERANIUM CONCRETE

Pelargonium graveolens Egypt

Pelargonium graveolens is one of the most fragrant species of pelargonium and used as a source for geranium oil. The woody herb is native to South Africa, but is produced in large quantities in Egypt as well. It flourishes in a subtropical climate.

USD 550.00 /kilo

PARSLEY HERB OIL

Petroselinum crispum Egypt

The versatile herb of parsley is native to the Mediterranean region. The herb reaches a maximum height of one to two feet and flourishes in areas with partial shade. Parsley herb oil is available in stock.

USD 140.00 /kilo

CLARY SAGE OIL

Salvia sclarea

The season for clary sage starts late June and lasts only for a couple of weeks. France is generally known to consume its annual production of clary sage oil internally through the aromatherapy and perfumery industry. However, lately there is a decline in the price of the product due to lower demand in the market.

Euro 100.00 /kilo

LAVANDIN ABRIALIS OIL

Lavandula hybrida var. abrialis

Lavandin abrialis is a hybrid of true lavender and spike lavender. For aromatic purposes lavandin abrialis oil possesses the characteristic aroma of organic lavender, though without the underlying camphor scent. The oil is currently not a favourite among buyers, due to its high price at the source. For lavandin abrialis oil to regain a competitive edge in the market production will need a spike and prices will have to go down.

Euro 55.00 /kilo

LAVANDIN GROSSO OIL

Lavandula hybrida var. grosso

Yet another hybrid quality, lavandin grosso exhibits qualities of true and spike lavender. Its flowers showcase a range of colours from intense blue-purple to greyer shades of spike lavender. Lavandin grosso is generally harvested in August. Its oil is highly sought after, though an unsatisfactory crop last season has resulted in a shortage of supply. With new areas being used for plantations, there is an expected surge in production next season, though it will depend heavily on favourable climate conditions.

Euro 43.00 /kilo

LAVANDIN SUMIAN OIL

Lavandula hybrida var. sumian

Lavandin sumian is a healthy and strong hybrid with a regular good yield. It fetches a decent price in the market, though there isn't a stable demand for the product. This led to low quantities being produced last season. The oil can be developed and added to the palette over a period of time.

Euro 40.00 /kilo

LAVANDIN SUPER OIL

Lavandula hybrida var. super

Similar to lavandin abrialis oil, lavandin super too is failing to attract buyers. The high price of the product at source is working as a major deterrent. Lavandin super oil will need a push on the production side and a decline of price to forge a relationship with buyers again.

Euro 50.00 /kilo

LAVENDER OIL

Lavandula angustifolia

The evergreen shrub lavender hails from a similar family as mint. It flourishes in the wild highland regions of France, particularly in the Alpes de Haute Provence. It is recognised as one of the major lavender producing regions in the world. The intense blue-purple flowers bloom in summer, and are harvested in July and August. Fine lavender has seen a low yield compared to maillette in the recent past, which has shot up the prices. It is thus obvious that lavender fine oil is attracting fewer customers than maillette.

Euro 185.00 /kilo

LAVENDER OIL MAILLETTE

Lavandula angustifolia var. maillette

Maillette lavender is another variety of fine lavender, reproduced by seed germination. It is widely cultivated in Provence on sunny mountain slopes between 600 and 1700 metres. The production issues with Bulgarian lavender oil have worked as a boon for maillette, and it has witnessed a sizeable increase in demand. Though with the new season of Bulgarian lavender oil around the corner, it is yet to be seen if the high demand for maillette remains.

Euro 155.00 /kilo

CELEBRATING BLOSSOMS
THEIR EVER INSPIRING VIBRANCE

Nathalie Sahut, Fragrance Influence, France

Flowers are a great source of inspiration. The colourful and fragile beauty of blossoms and their beautiful natural scent inspire all - from famous poets to the most creative perfumers. Here is an insight on a perfumer's delight.

Among the numerous natural raw materials employed by master perfumers to create their fragrances, flowers are the most used part of a plant. Nevertheless, depending on the species, petals, buds, and even leaves can serve as raw material to produce essential oils.

Rose, jasmine, tuberose, narcissus, mimosa, orange blossom, lavender, and ylang-ylang are among the most appreciated floral essences in perfumery and aromatherapy.

I present a closer look at the secrets that lie deep in the heart of these flowers. From the characteristics harnessed by perfumers to formulate their most exquisite fragrances, to the properties we can draw from in our everyday lives.

QUEEN OF FLOWERS

Of all the flowers, the best known has to be the rose. Appreciated for its beauty and delicate fragrance, its perfume and cosmetics usage date back to ancient times.

The subtle, yet refined and opulent scent of the rose lends perfumes a natural note. Indispensable in women's perfume, rose constitutes the heart note of so-called floral fragrances, like Nina Ricci's L'Air du Temps (1948), Paris by Yves Saint Laurent (1983), Trésor by Lancôme (1990), and 1 Million by Paco Rabanne (2008).

Perfumery makes use of two botanical varieties from the hundreds of known rose species:

Rosa centifolia L. (hundred-petalled rose), also known as the Rose de Mai, cultivated in Grasse and Morocco.

Rosa damascena more commonly known as the Damask Rose, grown mainly in Bulgaria and Turkey.

These two varieties feature very different fragrances. Rose de Mai has a much warmer and sweeter aroma than the Damask Rose, which has a fresh scent.

In addition to perfumery, the rose contains an essential oil with indisputable sedative, aphrodisiac, and soothing qualities. Its anti-wrinkle properties are excellent, offering a natural, durable alternative to skincare creams. Rose petals can also be used in cooking, adding a distinctive flavour to confectionery, Middle Eastern pastries, and jellies.

Synonymous with romanticism and love, the rose is the most appreciated flower.

DIVINE JASMINE

Jasmine, along with the rose, is the most frequently used flower in modern perfumery. Jasmine's unique olfactory properties encompass an astonishingly wide range of facets that take in soft, flowery, warm, animal, spicy, and fruity notes. The power of jasmine's perfume, equal to the rose in terms of its voluptuousness and opulence, cuts a striking contrast with its fragile flowers.

Of the two hundred known species, perfume creators predominantly employ only two jasmine varieties:

Jasminum sambac native to a small region in the eastern Himalayas in India but now most production and extraction is undertaken in the state of Tamil Nadu.

Jasminum grandiflorum which sometimes goes by the names of Grasse Jasmine. The dominant producers of jasmine concrete are India and Egypt.

Combined with rose, *Jasminum sambac* features at the heart of numerous prestigious perfumes, including Chanel No. 5 (1921), Arpège by Lanvin (1927), and J'Adore L'Or by Christian Dior (2010).

Jasmine sambac absolute features in recent perfume creations, like Hypnotic Poison by Christian Dior (1998), Thierry Mugler's Alien (2005), and Flowerbomb by Viktor & Rolf (2005).

Jasminum officinale also called Common Jasmine or Poet's Jasmine, possesses calming, soothing properties. A herbal tea made with this type of jasmine releases tension and calms the nerves. It is recommended for insomnia, and in particular trouble getting off to sleep.

ENCHANTING TUBEROSE

Originally from Mexico, the tuberose was introduced to Grasse in the 17th century to be cultivated and used in perfumery. The courtiers of the "Sun King," Louis XIV of France, were particularly fond of this scent. Women would adorn their bodices with the flowers, and the heady perfume would fill the palace.

Today, the tuberose, ***Polianthes tuberosa,*** is mostly cultivated in southern India, around the city of Mysore, where the plantations stretch for miles.

In terms of smell, this unique flower offers a powerful, rich and complex scent. It develops a warm, honeyed floral note with balsamic, jasmine, earthy accents. The mysterious and enchanting tuberose is considered one of the most fragrant plants in the vegetable kingdom. With its sensual undertones, the tuberose is characteristic of fragrances with trail, to which it lends significant personality.

It features in the composition of numerous women's perfumes, such as Dior's Poison (1985), Givenchy's Amarige (1991), and The One Desire by Dolce & Gabbana (2013), to name but a few.

The tuberose symbolizes creativity and dangerous pleasures. Its white colour embodies purity, calmness, and innocence. It is said to protect the wearer from evil spirits.

TREASURED ORANGE FLOWER

In ancient times, orange flowers were the symbol of virginity and were used to decorate headdresses and wedding dresses. Today, in the southern French town of Grasse, the tradition persists of offering an orange blossom garland to couples marrying during the flowering season, from April to May.

Depending on the extraction process, several essences can be used:

Neroli essential oil is obtained by steam distillation of bitter orange flowers ***(Citrus aurantium)*** and is produced in Tunisia, Morocco and Egypt. This oil has a delicate, smooth odour. Its name comes from the Italian princess of Nerola, who used it as a perfume in the 17th century. Distillation also produces orange flower water, which is used in cosmetics, therapeutics and cooking. With calming and relaxing qualities, neroli helps reduce anxiety and stress, and brings a sensation of inner peace. In cosmetics, it is an ideal ingredient for regenerating mature and sensitive skins.

Orange blossom absolute is obtained by volatile solvent extraction. Its scent is sweeter and more intense than neroli essential oil. Absolute is mostly used as a heart note, in perfumes like Guerlin's Heure Bleue (1912), Jean Paul Gaultier's Classique (1993), and Armani Code for Her by Giorgio Armani (2006).

Much fresher and cheerful, orange flower essential oil is mainly used as a headnote, like in Poison by Christian Dior (1985), Givenchy's Amarige (1991), and For Her by Narciso Rodriguez (2004).

Orange flower can accentuate certain fruity notes in floral perfumes, but it is also present in perfumes with an oriental character.

PRODIGIOUS LAVENDER

The Romans used lavender to perfume their baths and freshly washed linens. Ever since, this purple-flowered plant has remained associated with the idea of hygiene and cleanliness.

Despite its name, English Lavender or True Lavender, ***Lavandula angustifolia***, is mostly cultivated in Bulgaria and the south of France. The flowers are harvested in July and August, and then distilled to obtain an essential oil with a fresh, delicate, floral fragrance.

True Lavender features in the composition of numerous eau de toilettes for men as a head note to bring freshness, including Le Male by Jean Paul Gaultier (1995), Hugo by Hugo Boss (1995), and Dior Homme by Christian Dior (2005).

In aromatherapy, lavender essential oil is known for its repairing, soothing properties. The relaxing qualities of lavender make it a useful ally to combat stress and insomnia.

In Provence, in the South of France, lavender is also used to perfume the rooms of the house, they simply pick them and put them in small sachets to hang or place in cupboards to delicately fragrance clothes. The smell of the dry blossom lasts for months.

EXOTIC YLANG-YLANG (CANANGA ODORATA)

Cultivated in the archipelago of the Comoros and Madagascar, the very name ylang-ylang evokes exotic travels.

The freshly cut blooms are distilled with steam to extract an essential oil that is frequently used in perfumery. Its flowery, mellow, exotic, musky, and jasmine fragrance is highly appreciated by perfume creators. They sometimes combine it with sandalwood, bergamot, and rose. Ylang-ylang adds an elegant floral note to numerous perfumes, such as Dior's J'Adore (1999), Black Orchid by Tom Ford (2006), and Lolita Lempicka's Elle L'Aime (2013).

In aromatherapy, essence of ylang-ylang is appreciated for its stimulating, regulating, and regenerating effects. A reputed aphrodisiac, it also helps to calm the nerves, and combat nervous tension.

In Indonesia, blossoms of ylang-ylang are spread over the bed of newlyweds.

EXQUISITE VIOLET

Violets, ***Viola odorata***, are reputed for their flowers, delicate fragrance, and medicinal properties since ancient times.

Originally, only the violet bloom was used in perfumery, using an extraction technique known as *enfleurage*. Nowadays, it is the violet plant's leaves that are highly prized in prestigious perfumery. Since violet leaves grow best in hot climates, they are mostly cultivated in Egypt and, on a smaller scale, near Grasse.

Perfumes that contain violet leaf absolute include Fahrenheit by Christian Dior (1988), For Him by Narciso Rodriguez (2007), and Downtown by Calvin Klein (2013).

Calming, purifying, and stimulating, violets are used in cosmetics formulated for tired and irritated skin.

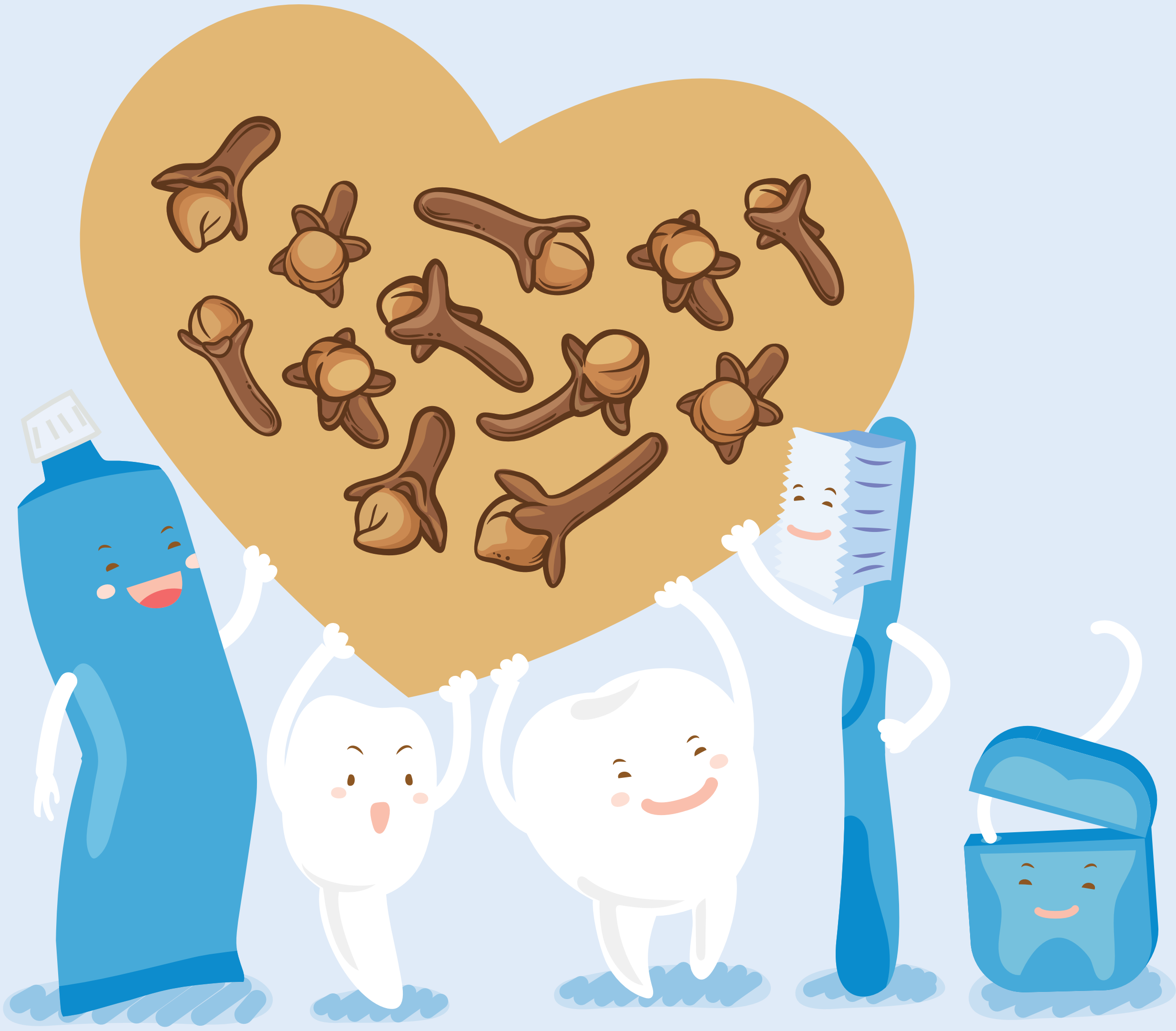
The violet was also Napoleon Bonaparte's favourite flower. In the language of flowers, a violet symbolises modesty, humility, and secret love.

Flowers have been cultivated all over the world for centuries, bringing us much pleasure. Dedicated men and women work the land with humility, enthusiastically grow plants, and patiently harvest blossoms in rhythm with the seasons.

They are concerned with respecting traditions and transmitting their knowledge to future generations. Flower production is part of the heritage of the land where the blossoms are grown. These flowers, when artfully accentuated by perfumers and skilfully employed for their therapeutic properties, write history, sculpt landscapes, and contribute to the economic growth of numerous regions around the world.

Let us continue to respect nature for its beauty, and the wonderful produce it offers us. And let us pay tribute to, and encourage the men and women who spend a huge part of their lives tending their land to bring us such beautiful blooms.

VAN Aroma



A (C)LOVE AFFAIR YOU JUST CAN'T BRUSH ASIDE

Eugenia Caryophyllata Essential Oil

Committed to improving lives

www.vanaroma.com

AMYRIS OIL

Amyris balsamifera *Haiti*

The woody aroma of amyris essential oil has given it the pseudonym West Indian Sandalwood. It is mostly found in the mountainous regions of south-eastern Haiti. The current sensitive political climate in Haiti has also affected amyris oil production. Even though amyris production is scaled back during this period, the unavailability of fuel has left finished goods trapped in warehouses for the foreseeable future. Processors are hoping that the situation subsides soon, but at the moment they have to be patient and play the waiting game.

USD 85.00 / kilo

VETIVER OIL

Vetiveria zizanioides *Haiti*

Haiti is an important supplier of amyris and vetiver oils. Les Cayes is the primary area for the production of vetiver. The political climate in Haiti has taken a turn for the worse with escalating levels of unrest and protests. The country has been almost shut down, and the timing couldn't have been worse. This is a crucial stage in the vetiver production cycle. The period from January to March is utilised for harvesting and distillation of the crop and fresh materials are distilled to create the finest quality oil and give the highest yields. The political unrest has reduced availability and the difficulties have been compounded by problems of inflation, corruption, fuel availability and delayed shipments. Processors have been starved of fuel supplies and been unable to move goods and receive boiler fuels for distillation. These constant delays have left the producers in a precarious position. They are either unable to produce oil from fresh raw materials, or move finished product.

USD 335.00 / kilo

Ongoing trade wars, the escalation in customs duties and consequent retaliatory action by countries are affecting commodity markets, including the essential oils trade. An export from China to USA and *vice versa* that attracts higher tariffs augurs well for India, in terms of generating more business. Also the Indian rupee has slipped significantly in comparison to the euro and dollar. If a truce is not reached soon in the USA-China tariff war, there will be a lot of reshuffling in the dynamics of essential oils markets.

BLACK PEPPER OIL

Piper nigrum L. *India*

Global prices for black pepper have reached their multi-year nadir about a month ago. With a 2 to 3% price hike across all black pepper sources, there is limited scope for further downside movement. Our recommendation is to assess and cover long term requirements. There is also a dip in the quantity of oil available; so the period of easily available low cost oil is also drawing to a close.

USD 52.00 /kilo

CAPSICUM OIL

Capsicum frutescens *India*

This year the Indian monsoon has been normal. The sowing area for the 2019 crop has been increased, and the market is looking forward to stable prices for chillies in the next six months. It is advised that only short-term requirements are addressed for now.

NA

CARDAMOM OIL

Elettaria cardamomum *India*

Kerala is the main source of cardamom in India. The recent floods were devastating, affecting the growing areas and causing a crop loss of about 20%. Price correction is definitely not around the corner.

USD 335.00 /kilo

CELERY SEED OIL

Apium graveolens *India*

It is recommended that medium term requirements are addressed, as the next crop is expected only in May 2019. A marginal price correction might be on the cards.

USD 90.00 /kilo

CORNMINT OIL

Mentha arvensis *India*

There is a lull in the market for this crop. Prices are falling while the new crop is eagerly awaited. Considering present market circumstances and the demand-supply ratio, acreage is expected to increase. *Mentha arvensis* planting began from the end of February. The crop may stretch out till the end of March or even early April - a little later than the usual planting period. Naturally, this deferral in planting will also delay harvesting and distillation, which will be late by around 15 to 20 days. Hence there is the apprehension of loss of yield of final crop output due to onset of early monsoons. *Mentha arvensis* oil is fetching better prices for the farmers in comparison to *Menthe piperita* oil.

USD 25.00 /kilo

CUMIN SEED OIL

Cuminum cyminum India

The sowing of the cumin seeds commenced in November 2018 and the picture looks good. Healthy rainfall and strong prices are expected to contribute to a good season.

USD 30.00 /kilo

GINGER OIL

Zingiber officinale India

The copious rainfall in India, especially Kerala, has affected the crop and consequently prices have shot up by over 20%. There is limited availability of carry forward; and the market is hoping for firmer trading prices in 2019.

USD 113.00 /kilo

INDIAN BASIL OIL

Ocimum basilicum India

There is already a lull in the market with a downward slide in prices. The new crop is yet to come in.

USD 13.00 /kilo

LEMONGRASS OIL

Cymbopogon citratus India

Lemongrass prices seem to be falling now and there is not much reason to be perturbed. The easing of prices could be due to the availability of synthetic citral in the market.

USD 25.00 /kilo

NUTMEG OIL

Myristica fragrans India

Almost 25% of the trees in the nutmeg growing areas were impacted by the acute floods. Production is anticipated to be lower in the coming season; but prices to trade higher. It is recommended all serious buyers fulfil their medium term requirements.

USD 58.00 /kilo

PAPRIKA OIL

Capsicum annuum L. India

With the normal monsoon rains this year, it is hoped that the sowing area for paprika will increase for 2019. On the contrary, China is looking at 10% lower crop as compared to last season. With large carryover stocks still available with both manufacturers and customers, there is bound to be some volatility in paprika oleoresin prices in the coming two or three months. It is recommended that material for midterm requirements till the first quarter of 2019 is booked at the earliest.

NA

SPEARMINT OIL

Mentha spicata India

There is not much action with tepid demand and consequently not much availability.

USD 33.00 /kilo

TURMERIC OIL

Curcuma longa India

The Indian monsoon has not disappointed and there was adequate rainfall. The sector is looking at a larger sowing area, almost 20% increase as compared to last season. With limited carryover stock available in the market, prices are expected to settle at their current levels.

USD 26.00 /kilo

PEPPERMINT OIL

Mentha piperita India

The market for *M. piperita* (peppermint) oil seems to be quite stable at present with quite a steady demand. But, there is a dearth of good quality material. The current prices of Indian peppermint are paralleling the lower farm level prices of US markets. Naturally, the USA export scenario is highly discouraging as far as Indian exports are concerned. However, as a result of duty differentials, a significant amount is diverted to China. This has helped to maintain a reasonably continuous demand in the market. The *M. piperita* season began from the middle of January and extended until February. As a result, the current crop was almost 20 days later than usual. This year, going by the crop estimates coming in from the growing regions, the acreage for the *M. piperita* crop is predicted to go down by a significant 30%. Early March reveals a clearer picture once the crop starts developing. Considering the news of new plantation root holdings and comparing last year's figures, it is hoped that 2019 will fare better. Also 2018 saw the prices of *Mentha arvensis* (cornmint) oil shoot up in comparison to *M. piperita*; so this year farmers are more inclined to favour *M.arvensis*. Currently there is an adequate amount of synthetic peppermint and the carryover is decent. *M.piperita* containing 1.7% menthofuran continues to enjoy robust demand, which has inched up day by day. The oil blend is prepared with P&N *M. piperita* oil having higher furan content as one of its key ingredients, which is mixed with some derivatives of natural *M. arvensis* oil. In the current situation, it is advised to book orders to cover present requirements.

USD 40.00 /kilo

TERPENES
A MAJOR RENEWABLE AND SUSTAINABLE SOURCE OF FRAGRANCE AND FLAVOUR INGREDIENTS

Sustainability issues are now at the top of the flavour and fragrance (F&F) industry agenda. Consumers increasingly require natural products obtained from renewable resources produced using sustainable processing methods. Terpenes are a major source of environmentally friendly and sustainable ingredients for the F&F sector. There are many thousands of terpenes found in nature but pine and citrus-derived terpenes are by far the most important as far as the F&F industry is concerned. These terpenes are obtained from plant-based origins and have clear advantages over unsustainable petrochemical-based products, which have a substantially higher carbon footprint.

A combination of rising global demand alongside disruptions in the global supply chain for some major terpenes and F&F ingredients over the past two years has created supply problems and increased terpene prices, which still remain firm. This article discusses trends in the supply and demand for the two major sources of terpenes produced from pine trees and as orange by-products. In addition, there is a short discussion of the increasing use of biotechnology solutions to create terpenes.

TURPENTINE – A UNIQUE AND RENEWABLE RAW MATERIAL

Many people do not realise how important turpentine from pine trees is as a source of supply for F&F ingredients – particularly fragrances. It remains the most plentiful essential oil in the world but it is a "by-product" constrained by inelastic supply. Some estimates suggest it accounts for approximately a quarter of the value of aromatic chemicals used by the F&F sector. Currently an estimated 316,000 MT of turpentine is produced globally, approximately two-thirds of which is further processed into F&F ingredients.

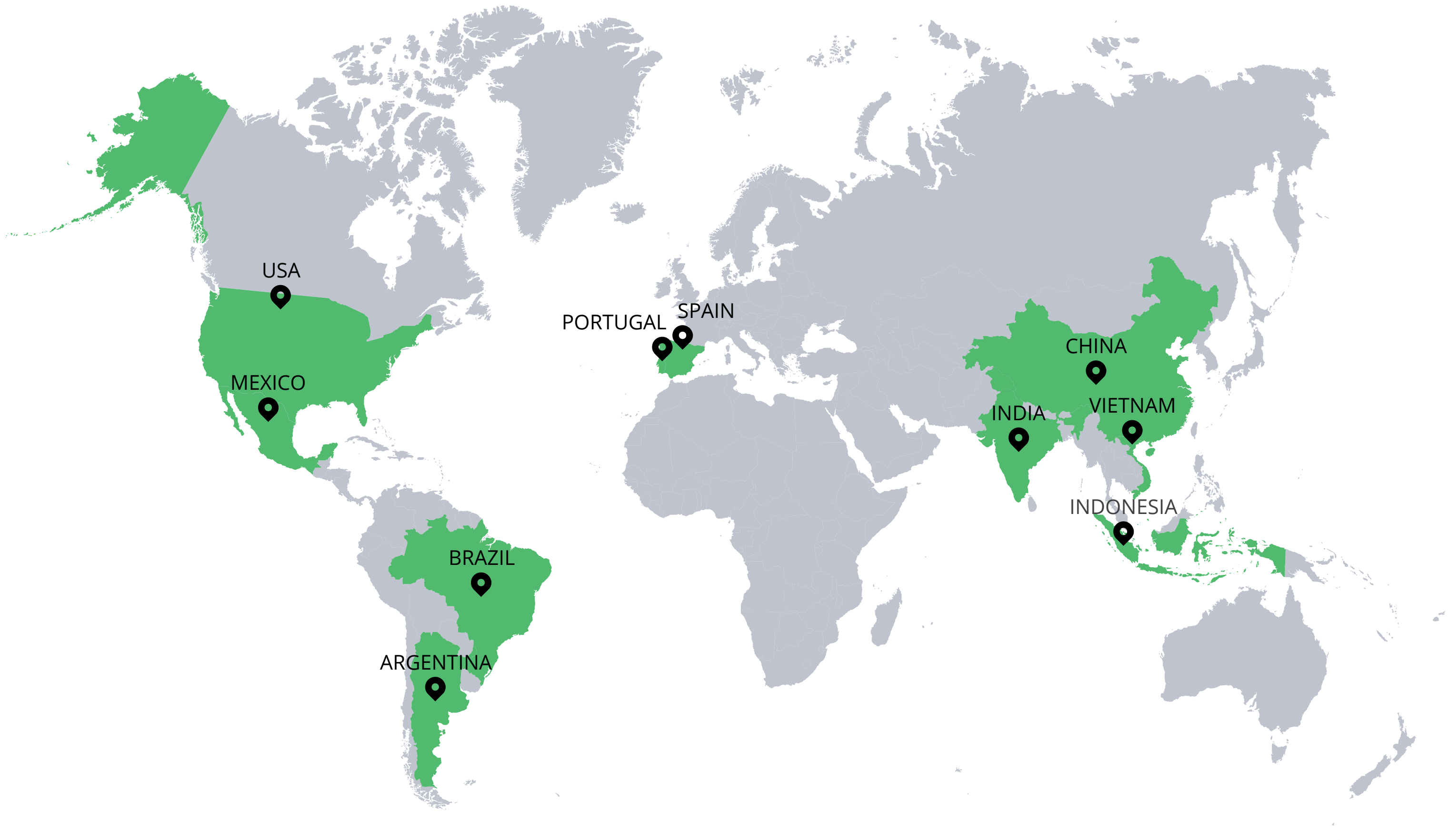
TURPENTINE PRODUCTION

Traditionally, there have been three sources of turpentine:

Gum turpentine, the volatile oil distilled from pine oleoresin, which is obtained from tapping living pine trees of the genus *Pinus,* either natural stands or increasingly pine plantations grown for timber or for producing paper pulp. Tapping can be undertaken throughout most of the year using a similar process to that used to tap rubber trees. The gum oleoresin obtained is separated to obtain two products; gum rosin and gum turpentine with an approximate 4:1 ratio. Both turpentine and rosin are used in a wide variety of applications. Since turpentine and rosin are jointly produced products, the economics and markets for rosin and its derivatives can impact on turpentine derivatives used in fragrances and flavours - and vice versa. Since rosin is not used by the F&F industry there is no further discussion here. Turpentine, rosin and derivatives obtained by tapping, used to be referred to as "gum naval stores" reflecting their use over many centuries in shipping. More recently the term "pine chemicals" is used.

Crude sulphate turpentine *(CST)* is a by-product recovered from the kraft chemical pulping of pine trees to produce paper.

Wood turpentine is extracted from aged pine stumps.



Current gum turpentine production is estimated at **125,000 MT** *but falling.*

Portugal, USA and Spain used to be major producers but economic growth and labour issues in these countries over the past few decades led to a substantial fall in production.

Production trends from these three sources have varied. Current gum turpentine production is estimated at 125,000 MT but falling. Portugal, USA and Spain used to be major producers but economic growth and labour issues in these countries over the past few decades led to a substantial fall in production. However, the trend in Spain has reversed recently following the severe economic downturn after the 2008 financial crash and in 2018 an estimated 18,000 MT of gum oleoresin was processed in Spain, some of which was imported. China produces turpentine in the growing regions of Guangdong, Fujian, Jiangxi and Yunnan, and accounts for approximately half global production. However, output has been falling for several reasons: reduced labour availability and higher cost, stricter environmental regulations, reduced competitiveness of gum rosin because of hydrocarbon resins. Meanwhile Chinese domestic consumption continues to rise, leading to it becoming a net importer. In contrast, Brazil, the world's second largest producer, has seen a considerable expansion of pine forests over the last two decades leading to a growth in output and exports. Brazilian investment in R&D is leading to improved techniques and rising yields. Other producers include Indonesia, Vietnam, Argentina, Mexico and India. With limited availability of both pine forest resources and manual labour, improving the efficiency of forestry management and pine tapping techniques to produce pine oleoresin is a key issue for the future of pine chemical production.

Reduced availability of aged pine stumps has led to a dramatic fall in wood turpentine production over recent decades with current production estimated at only 6,000 MT, below 2% of global production. Because of the decline in gum and wood turpentine production, the market share of CST has increased, despite its relatively stable production. CST production is currently estimated at 185,000 MT.

TURPENTINE DERIVATIVES

Turpentine is mainly composed of terpene substances (hydrocarbons, esters, alcohols etc.): monoterpenes, (10C) and sesquiterpenes (15C). Some two-thirds of turpentine production is used to produce terpenes. The most common turpentine components are alpha and beta pinene, myrcene, limonene, and Δ_3 carene, limonene and dipentene. However, gum turpentine as a natural essence has a varied composition depending on the species of pine tree and their geographical location. The table below illustrates the chemical composition of some pine species.

PINE SPECIES: TYPICAL TERPENE COMPOSITION

Terpene (%) / *Species (origin)*	*α-pinene %*	*β-pinene %*	*Camphene %*	*Myrcene %*	*$Д_3$Carene %*	*Limonene/ Dipentene %*
P. massoniana (China)	90.50	5.30	1.50	1.00	0.00	1.70
P. elliotti (Brazil)	66.50	24.20	1.30	0.80	---	0.90
P. pinaster (Spain)	72.00	20.50	1.45	0.90	0.70	1.55
P. longifolia (India)	27.30	6.00	0.30	2.20	60.80	1.00

Thus, for example, over 95% of Chinese *Pinus massoniana* turpentine is composed of ***α**- and **β**- pinenes*. A wide range of derivatives can be obtained from processing ***α**- and **β**- pinenes* to create many F&F ingredients, some of which cannot be produced from petrochemical sources. These include:

Myrcene - myrcenol (lemon), iso-e-super (amber), lyral (lily of the valley)
- geraniol nerol (rose), citral (citron), ionones (rose, violet)

Pinene - pinanol, linalool (lily of the valley)
- citronellene, citronellol (rose), citronellal, menthol, hydroxyl-citronellal (honeysuckle)

Terpineol (pine, lilac) – methanol (woody)

Camphor aldehyde (sandalwood)

Camphene – isocamphylcyclohexanols (sandalwood)

Iso bornyl acetate

The remaining third of turpentine not used to produce terpenes for F&F ingredients has other uses. These include polyterpenes, mining applications, camphor, solvents or cleaning agents for paints and varnishes, which used to be the dominant use of turpentine. The joint production of a range of products combined with the potential substitution from alternative sources makes some of the end uses for turpentine very price sensitive. Thus, the rising prices of F&F terpene ingredients could lead to reduced utilisation of turpentine derivatives in other end uses. The most obvious example has been the decline in use of turpentine as a paint solvent, as the value and use of turpentine as a basic feedstock for the manufacture of a number of derivatives for use in the fragrance industry has increased.

GLOBAL SHORTAGES

Alongside growing global shortages of turpentine there have been other major recent disruptions in the supply chain for terpenes and F&F ingredients. In 2017 there was a fire at the BASF plant in Germany, which led to the fall in production of the key raw material citral from 60,000 MT to zero. In addition, there has been a delay in establishing the BASF plant in Malaysia. Meanwhile, there were two fires in Mahad in Maharashtra, India in 2018. In February the DRT Anthea factory producing iso-e-super and DHM was put out of action for a year. Also in April 2018 there was a fire at the Privi factory that destroyed the ionone plant and hydrogenation unit. These factors contributed to the substantial rise in terpene prices in 2018.

As the above discussion illustrates, the dynamics of the pine chemical market are complex. The growing demand for more environmentally sourced, ecological, sustainable, biological "green" products favours chemicals produced from pine forests with their renewable low carbon footprint. However, the availability of pine forests, particularly in Asia, combined with increased labour costs and inefficient collection techniques, is reducing pine oleoresin availability and raising prices. Despite the growth of pine chemical production in South America and Spain, mainly because tapping techniques are more efficient, the supply constraints will probably continue to increase in the near future.

ORANGE BY-PRODUCTS

The other important source of terpenes is orange juice by-products, which includes essential oils, d'limonene and l-carvone. While fresh oranges and juice dominate the orange business there is a thriving and growing market for orange by-products, which in Brazil became significantly more important after 2013 and are estimated to account for some 7.5% of this multi-billion dollar business. Orange oil and terpenes are two important by-products from the production of the two main products FCOJ (frozen concentrated orange juice) and NFC (not from concentrate juice). On average some 49.2% of a Brazilian orange is peel, seeds and bagasse, 44.8% is juice, 1.8% is essential oil and 0.9% d'limonene and these latter two products have relatively high unit values.

The demand for orange derivatives (oil, terpenes and juice) is unbalanced in part because the market for FCOJ and NFC is decreasing. Meanwhile the demand for CPOO (cold pressed orange oil) and orange terpenes is increasing and the revenues from these derivatives are becoming more important. Demand is growing for several reasons: they are seen as "natural", eco-friendly, with a low carbon footprint, while orange terpenes and d-limonene have been used to substitute for kerosene, acetone, and even turpentine, and their relative cheapness has seen their use as starting materials for chemical processes. For example, d-limonene/orange terpenes with their greener perception saw a major use in "fracking" fluids (a technique used to recover oil and gas from shale rocks) replacing petrochemicals. However, this has ups and downs based on oil price changes. Many of the uses for limonene/orange terpenes are not price sensitive, most have few alternatives which means they ultimately pay whatever the market dictates. There are not too many uses that disappear as prices increase so demand is often slow to reduce as prices climb. Over the past two decades, the volume of exports of Brazilian orange oil and terpenes has shown a slight downward trend. Meanwhile, while prices have been volatile the trend has been upward, increasing almost 10-fold during this period.

BIOTECHNOLOGY SOURCES

Increasingly, biotechnology is becoming a major factor as it is being used to create natural F&F aroma ingredients through fermentation and other processes. A range of natural products (e.g. valencene, nootkatone, limonene) can be produced using sustainable and renewable resources (e.g. orange oil, glucose, yeast). For the moment, it appears to be only impacting high value products, such as valencene, nootkatone and vanilla, which are leading the way. However, it may gradually move down the value chain - but that's a story for another day!

A list of sources used in preparing this article is available on request.

VAN Aroma

COMMITTED TO
IMPROVING LIVES

BLACK PEPPER OIL

Piper nigrum L. Indonesia

Vietnam had a bumper production, which has led to a drastic price crash for black pepper. This spice is charting a path similar to that of turmeric. Considering that Van Aroma produces black pepper oil and oleoresin using CO_2 extraction, now is an ideal time to deliberate this new offering. Also the current market dynamics are conducive for easy entry into this product.

USD 755.00 /kilo

CAJEPUT OIL

Melaleuca cajuputi Indonesia

Indonesia has stepped up its export of cajeput but this has not affected the production in any way. On the contrary, production of cajeput oil has increased in recent times and holds promise of further improvement. The oil has extensive use in traditional and local medicine, the main reason behind its strong domestic demand. Unlike with some other producers the AAI quality has remained good and consistent during testing times when there were challenges in sourcing the oil. Today the exchange rates are affecting prices, but the market is hoping that rates will even out soon.

USD 29.00 /kilo

CANANGA OIL

Cananga odorata Indonesia

Cananga commands an unwavering interest from the market. Unfortunately the industry is unable to harness the full potential of these opportunities since output is on the decline. There are no new plantations planned for the future. The older trees continue to flower, but reduce each season. Now with the onset of the rains, production is at its lowest so there is nothing to write home about. With no good news coming in for the moment, prices continue at their previous steady levels. Interesting to note here, Van Aroma has initiated efforts to cultivate over 30 hectares of cananga intercropped with patchouli as part of the sustainable cultivation project in Sulawesi. This is poised to bring in a sustainable supply in the long term, and serve as a reliable source of quality cananga oil.

USD 152.00 /kilo

CITRONELLA OIL

Cymbopogon winterianus Indonesia

The good news is that production has improved this year. But what is disheartening is that this has had little influence in appeasing prices as they continue to remain firm alongside a wanting market. The positive side is that many farmers have invested in citronella this past year so supplies are expected to increase into 2019.

Citronella derivatives have been the subject of much speculation lately. Indonesia has stepped up its production volumes but this is balanced out by the decline in production volumes by China. This increase in volume may have caused some softening of prices at source in Indonesia. Despite this, general price levels in global markets remained stagnant or dipped negligibly. With many new plantations, and sources coming up both in Java and Sulawesi, there is also a lot of out-of-specification and non-ISO specified material available in the market. Buyers are advised to check samples prior to committing at low prices.

USD 25.00 /kilo

CLOVE OIL

Eugenia caryophyllata Indonesia

The past few weeks have seen a sharp rise in clove prices. There has been incessant rainfall but, despite this, production is stable at source. Sulawesi is gradually inching its way to being a foremost contributor to the volume of clove oil being produced. With Madagascar also contributing with clove, this has been a balancing factor in overall clove prices; and the market is hoping that the drastic price surges will be less frequent. Van Aroma's volumes have grown significantly in the last 8 to 10 months.

USD 18.00 - 24.00 /kilo

CINNAMON BARK OIL

Cinnamomum cassia Indonesia

This market has witnessed a drastic drop in production levels in recent months. This has adversely affected the local prices of raw materials. In addition, the exchange rates are not encouraging, and have exerted additional pressure on yet another essential oil of Indonesian origin.

USD 485.00 /kilo

GINGER OIL FRESH

Zingiber officinale Indonesia

Robust domestic demand and quite a bit of attention in international forums have been instrumental in influencing the price of this oil. Supplies are at a recent low; prices are on the higher side and there are no obvious improvements on the horizon.

USD 130.00 /kilo

GURJUN BALSAM OIL

Dipterocarpus spp. Indonesia

The indigenous paper and pulp industry has recently laid claim to Indonesia's rich forests. Therefore there has been a radical decrease in supplies for the Copaene type Gurjun balsam. The overall production for the year 2018 did not meet the mark of previous years; and it is expected that the oil will persist in its decline in the coming years.

USD 6.00 - 26.00 /kilo

NUTMEG OIL

Myristica fragrans Houtt. Indonesia

Currently, nutmeg stands on a firm footing, as it has for some time now. No significant upheavals are anticipated in the short term since the supply and demand equation seems to be balanced with universally accepted price levels. In keeping with past trends, the volume of production in Sumatra is higher than in Java. Considering that there are limited major buyers, and a stable demand for the product, no price vacillation is predicted. In addition to the above, the attraction for the "Safrole free" variant of nutmeg oil is gaining momentum among practitioners of conventional and aromatherapy wellness. Market players are looking at this variant as a growth area, and a driver for volumes in the coming years.

USD 60.00 /kilo

VETIVER OIL

Vetiveria zizanioides Indonesia

Prices of vetiver have eased due to a sudden influx of new materials in recent weeks. This has alleviated the pressure; and now prices have stabilised. It is still some time before the next harvest comes in during Q3, so a price hike may be imminent. Of late, the Indonesian producers have faced criticism for delivering inferior quality. With recent developments to enhance quality, and efforts to improve distillation equipment and processes, the quality dispatched for export is markedly better than before. In spite of these challenges, Indonesian vetiver oil maintains its unique characteristics, and is perceived as a quality product as compared to the Haitian material.

USD 290.00 /kilo

PATCHOULI OIL

Pogostemon cablin Indonesia

Local patchouli stock availability is gradually diminishing and supplies are slow due to the rains. This has pushed up local prices. The new harvest is expected to start around early to mid-April, depending on the region. Sources are unable to comment on the production for this harvest or the market reaction to improvement in supply; but the market is looking forward to an easing of prices in the coming weeks. The upcoming harvest is expected to peak in May to June.

Patchouli has witnessed a slowdown in sales over the last couple of years, and this has been well documented. The dismal prices that the crop has been fetching have dampened the interest of farmers and now they are not too keen to continue with patchouli at these levels. There was an underlying hope that prices would rally once supplies flowed back in line with demand, and existing stocks were exhausted. This would be the natural course in any case, but the arid weather conditions and natural disasters in Sulawesi have compounded the problems of farmers and distillers. This has led to a much faster slide in prices than was anticipated. With the arrival of the rains there was expectation of market interest for the early New Year. But there was no word from the collection points and this put further strain on supplies. The ripple effects were felt in local supplies, especially after a spike in exports during September and October (perhaps after IFEAT Cartagena Conference). Now, supplies continue to remain subdued until March. Prices are susceptible to volatility, and will react to any strong demand during this period.

USD 45.00 - 60.00 /kilo

BERGAMOT OIL

Citrus bergamia *Italy*

The prediction of an unsatisfactory crop and the escalated demand for fresh fruit was well anticipated. Consequently, prices of bergamot fruit were already at a peak. December saw a slight dip in the prices of both fruit and oil; but prices rose again by the end of December. The season closed in February. Organic bergamot obtains a premium of approximately 10%.

Euro 230.00 /kilo

BLOOD ORANGE OIL

Citrus sinensis *Italy*

In Italy most oranges are consumed fresh. Blood varieties (Tarocco, Moro, and Sanguinello) are used primarily for fresh consumption. Late varieties (Ovale, and Valencia) are destined for both the processing and fresh markets. The volume of oranges channelled into processing depends on orange quality and the level of domestic and export consumption of oranges. In 2018/19 Italy is forecast to process approximately 267,000 MT of oranges and produce 18,690 MT of orange concentrate.

In comparison to the other important citrus players, Italy's blood orange crop was quite dismal. This pushed up the prices to overtake last year's figures but there are no buyers. It is anticipated that, propelled by a decent demand from customers, the existing stock sells for a reasonable price.

Euro 11.00 /kilo

LEMON OIL

Citrus limon L. Burm. F. *Italy*

Italy is Europe's second largest lemon producer after Spain with most lemons destined for the fresh market. Sicily is the main lemon-producing region accounting for some 88% of domestic production. *Femminello Siracusano, Lunario, Interdonato, Limone di Sorrento*, and *Limone di Procida* are the leading lemon varieties grown. The USDA forecast 2018/19 lemon production at 400,000 MT, a decrease by 8% compared to the previous year due to hailstorms in spring 2018. However, quality is forecast to be excellent. In addition, Italy imports an estimated additional 128,000 MT of lemons and in total the quantity destined for processing in 2018/19 is estimated 72,000 MT, some 6,300 MT below 2017/18 levels.

Fresh fruit prices have fallen by 7% to 8% below the last crop, but almost 100% more than Spanish prices. The challenge is to find clients who are willing to purchase at these prices; but anything below these represents a loss for the industry. Despite the reduced crop this is not such a big factor. Due to fewer oranges a higher demand for lemons is anticipated from processors, to fulfil the working time. As a result, fruit prices are expected to increase again in March and April. Now is a good time to purchase and cover current requirements.

Euro 29.00 /kilo

MANDARIN OIL

Citrus reticulata *Italy*

The previous crop scenario was very bleak, and so there was very little processing of green and yellow mandarins. There may be not more than 50 to 70 drums in all Sicily; and almost all of these are already sold or under contract at between €68 to €72/kg. Red mature mandarin oil is processed from the end of January onwards but less than green and yellow mandarins. It is a discouragingly small crop and at the end of February there was a shutdown in production.

Euro 72.00 /kilo (Red)
Euro 74.00 /kilo (Yellow)
Euro 73.00 /kilo (Green)

HINOKI OIL

Chamaecyparis obtusa Japan

Hinoki wood and leaf oils have seen an exceptional rise in demand propelled by the aromatherapy and perfumery industries. The Shinjo village areas enjoyed warmer weather this year with not much snow; so there was sufficient supply of quality raw materials. Production was managed well and prices continue to remain unwavering.

USD 1900.00 /kilo (Leaf)
USD 650.00 /kilo (Wood)
USD 975.00 /kilo (Branch)

KEY LIME OIL

Citrus aurantifolia Mexico

Mexico has maintained its customary levels of key lime production with near 3.7 million MT of lime being harvested. The steady expansion of the fresh fruit market in the USA and Europe has a substantial bearing on the availability of fruit for processing. It is estimated that only 8%, about 300,000 MT of limes were available in Mexico during 2018 for processing into essential oils, juices and peel. The situation is set to endure well into 2019, since the additional new plantations that are being planted are still developing and not yet producing normal yields. Distilled key lime oil demand has seen a marked slowdown since last year but is predicted to renew and increase from the middle of 2019. It is rather too early to comment on volumes and pricing. Demand for CP lime oil remains unwavering and so is its price. The market expects good short and medium term stability on this item.

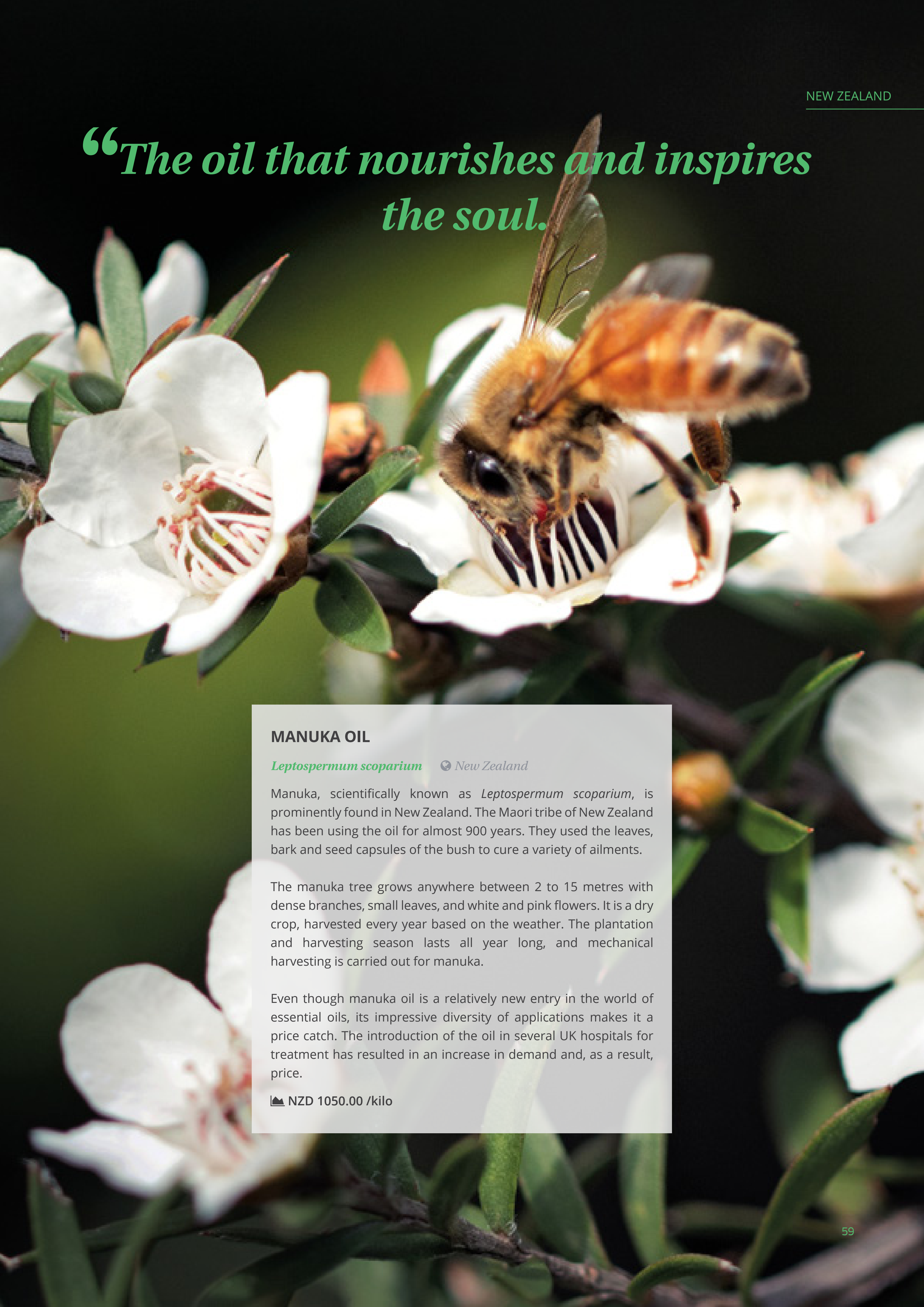
USD 31.00 /kilo

NEROLI OIL

Citrus bigaradia Morocco

This year's production may be average owing to the lack of rain in Morocco. Depending on temperatures in the coming weeks, production may be average compared to previous years. It takes seven years to achieve full yields for neroli, and with the increase in the number of producers and projects launched some years ago, there may be a higher volume produced this year. These two phenomena may balance each other and create price stability.

USD 7400.00 /kilo



“The oil that nourishes and inspires the soul.

MANUKA OIL

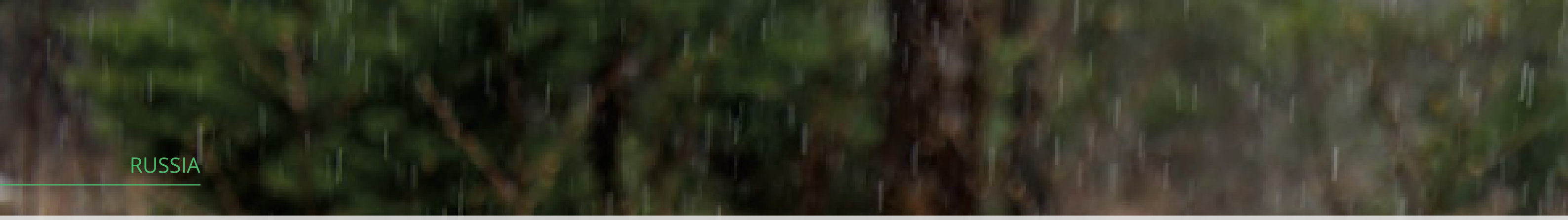
Leptospermum scoparium New Zealand

Manuka, scientifically known as *Leptospermum scoparium*, is prominently found in New Zealand. The Maori tribe of New Zealand has been using the oil for almost 900 years. They used the leaves, bark and seed capsules of the bush to cure a variety of ailments.

The manuka tree grows anywhere between 2 to 15 metres with dense branches, small leaves, and white and pink flowers. It is a dry crop, harvested every year based on the weather. The plantation and harvesting season lasts all year long, and mechanical harvesting is carried out for manuka.

Even though manuka oil is a relatively new entry in the world of essential oils, its impressive diversity of applications makes it a price catch. The introduction of the oil in several UK hospitals for treatment has resulted in an increase in demand and, as a result, price.

NZD 1050.00 /kilo



ARTEMISIA TAURICA OIL

Artemisia taurica

Artemisia is produced across Northern and Central Europe, Asia and Africa. It mostly prospers in uncultivated areas with nitrogenous soils. The production this season is expected to be low due to lack of rain.

NA

CLARY SAGE OIL

Salvia sclarea L.

With numerous therapeutic benefits, the flowering herb of clary sage grows up to six feet in height. Russia is known to be the leading producer of clary sage oil. Unfortunately production has been disappointing this fiscal year, and the quality of the crop unsatisfactory. Though with French clary sage plantations flourishing, it should be possible to meet all demands.

USD 155.00 /kilo

CORIANDER HERB OIL

Coriandrum sativum L.

Commonly referred as cilantro, coriander herb oil has a limited shelf life. The crop was disappointing this season, and a surplus from 2017 is still available.

USD 90.00 /kilo

CORIANDER SEED OIL

Coriandrum sativum L.

Coriander seeds are steam distilled to extract the oil. The crop is harvested between July and August. A poor crop affected production last year, but some carryover stock from the previous season was still available. The oil saw a price rise of almost 50% due to bad weather, as well as limited planting by farmers, who received a low price for the seeds in 2017.

USD 72.00 /kilo

DILL WEED OIL

Anethum graveolens L.

Dill weed oil is derived from the herb *Anethum graveolens.* The crop is harvested between July and September, and the oil extracted through steam distillation. The weather last season, though, was not healthy for the growth of the crop. Luckily, the production has been good in the United States to meet the demand for the oil.

USD 53.00 /kilo

FIR NEEDLE OIL

Abies sibirica Ledeb.

Fir needle essential oil is found in abundance in Russia and is extracted through steam distillation with typical yields of around 0.80% to 1.25%. There is abundant supply of the oil in stock, even though the price increased by 2-3 Euros by the producers due to higher production costs.

USD 39.00 /kilo

LAVENDER OIL

Lavandula angustifolia

Lavender is harvested during summer around mid-July, when the flowers start to wilt. Plantations in Russia are spread across the southern region. Last season saw a disappointing crop, which led to a drastic increase in price. Former Soviet Union countries not producing juniper berry and thuja oil are also an added factor.

USD 125.00 /kilo

CITRUS OVERVIEW

The citrus season is at its close at the moment but initial reports are positive. Despite the below average rainfall farmers are looking forward to a strong crop next season. Most feel it is a tad early to commit to a definite forecast, they expect to have more clarity in the near future. Last year saw a good crop, especially the pink grapefruit and there is adequate stock. Other citrus also had a good show; the amounts of orange and lemon fruit sent for processing were quite high. White grapefruit continues to face a bit of a challenge since the higher demand for pink grapefruit has led to a lack of interest in planting the white variety.

EUCALYPTUS SMITHII OIL

Eucalyptus smithii *South Africa*

The demand for this material is gradually on the rise since it is a universally accepted substitute for other eucalyptus oils that have less stable supply. Consequently, the last couple of years has seen prices move in an upward direction, but is not expected to increase further at this stage. Material is readily available.

USD 31.00 /kilo

MARULA OIL

Sclerocarya birrea *South Africa*

This year opens with adequate availability of material. Marula oil demand continues to escalate with its increasing popularity in new hair and skin care applications. Input costs in the areas of production have gone up, so prices are predicted to inch upwards in 2019.

USD 72.00 /kilo

ROSE GERANIUM OIL

Pelargonium roseum *South Africa*

2018 saw a lot of new plantings of rose geranium. This augurs well in terms of availability of additional material, but it will still be limited. There are various other crop trials in different parts of the country. These point towards an incremental increase in annual supply. Prices remain at the same levels as those of last year.

USD 535.00 /kilo

TAGETES OIL

Tagetes erecta *South Africa*

2019 is expected to witness a strong supply for this oil. The demand and supply equation remains balanced and as a result no shortages are anticipated in this season. Prices are expected to remain steady.

USD 132.00 /kilo

TEA TREE OIL

Melaleuca alternifolia *South Africa*

Tea tree continues to command its high levels of global demand. The market is expecting product shortages in 2019, especially for the organic material. The country has undertaken extensive plantings so hopefully product shortages will be eliminated over the next two years.

USD 38.00 /kilo

CYPRESS OIL

Cupressus sempervirens L. Spain

There are adequate stocks of cypress oil and production takes place throughout most of the year.

Euro 36.00 /kilo

LAVANDIN GROSSO OIL

Lavandula hybrida var. grosso Spain

There are lots of new plantations and we expect the yield to increase 30-40 % this year. Carry over is nil. However, we cannot predict what the quality will be like as it is the first year of harvest.

Euro 40.00 /kilo

RED THYME OIL

Thymus vulgaris Spain

There are no difficulties with the stock and its availability. The new crop is set to begin in June 2019.

Euro 110.00 /kilo

LEMON OIL

Citrus limon L. Burm. F. Spain

Estimates for Verna lemon production peg the figures at 380,000 MT. This is good news for Spain as it extends the season until August. AILIMPO's third lemon harvest estimate for the 2018-19 season endorses the initial predictions published in September. It outlines an estimated total crop of 1,300,000 MT; with a marginal increase in Fino lemon and Verna lemon showing recovery in volumes. The second phase of the season promises to be more encouraging with active demand and a greater growth rate for Fino lemon. For the Verna variety, it is a repeat of the 2001 story with crop volume forecasted at 380,000 MT.

If production goes as per predictions, Spain will retain its commanding position as the undisputed principal supplier in the European Union from April to August 2019. Spain's unshakeable domination in lemon oil has been distinguished by superior quality, guarantee of health coupled with excellent service. However, despite the impressive global crop figure, the rate of harvesting up to January has been low, leading to diminished processing activity. As a result, around 280,000 MT of fruit is expected to be channelled towards processing, a figure that is lower compared to the initial forecast of 300,000 MT. One source argues that reduced harvesting is partially the result of strong price competition from Turkey lemons, and to avoid lower lemon prices and losing market share, Spanish growers have slowed down harvesting.

Euro 27.00 /kilo

EUROPEAN UNION-ESTIMATED LEMON PRODUCTION (MT)

Countries	MY 2014 /2015	MY 2015/2016	MY2016/2017	MY 2017/2018	Forecast 2018/2019
Spain	1,089,000	775,800	995,000	928,000	1,108,094
Italy	429,000	394,000	447,000	435,000	400,000
Greece	55,700	68,500	68,829	85,003	85,000
Portugal	13,000	16,000	16,000	16,000	16,000
Cyprus	11,000	15,000	8,000	8,000	8,000
Total Production	1,597,700	1,269,300	1,534,829	1,472,003	1,617,094

Sri Lanka continues to face a weak Sri Lankan rupee against a very strong US dollar due to heightened political instability. The trade war between the USA and China coupled with the political turmoil in Europe has affected the markets; and commodity trading was sluggish at the end of 2018, including the essential oil markets.

CINNAMON BARK OIL

Cinnamomum zeylanicum *Sri Lanka*

The last quarter of 2018 saw an abundance of availability, although there were a few weeks of slowdown due to seasonal leafing. This is the time when it is difficult to separate the cinnamon bark from the wood, leading to an interruption in the peeling process. These factors combined with relative stable export demand, and a weak rupee lead to no change in prices. However, raw material supplies dipped from late February 2019 so there are hopes of a price rise, at least till the new harvest comes in.

USD 315.00 /kilo

CINNAMON LEAF OIL

Cinnamomum zeylanicum *Sri Lanka*

The profusion of cinnamon leaves and, consequently, good obtainability of raw material has contributed to even out availability of cinnamon leaf oil. But demand is subdued, so prices have fallen to even lower levels than before.

USD 24 /kilo

CITRONELLA OIL

Cymbopogon winterianus *Sri Lanka*

Adequate rainfall in the month of September has been a vital contributor to a healthy harvest, boosting the availability of grasses. Thus the production was healthy. Prices too were unwavering over the quarter. The oil from Java continues to offer stiff competition and demand for the Sri Lankan variety lingers at the previous low level. Therefore, no marked difference in prices is anticipated in the coming months.

USD 28.00 /kilo

CLOVE BUD OIL

Eugenia caryophyllata *Sri Lanka*

Clove crops were in the process of being harvested at the time of writing this. The spice export industry was continuing to dominate the demand for fresh clove materials. However, during the first quarter of 2019 some adjustment in the market price for Sri Lankan clove bud oil can be expected. Considering the competitive pricing of Indonesian traders, Sri Lankan distillers are expected to maintain low prices.

USD 75.00 /kilo

CLOVE STEM OIL

Eugenia caryophyllata *Sri Lanka*

The new crop of clove stems has resulted in a significant supply of raw materials. Naturally the price for clove stems has plummeted sharply. It is prudent to suppose that clove stem oil prices will remain low in the coming weeks.

USD 35.00 /kilo

NUTMEG OIL

Myristica fragrans *Sri Lanka*

The year end harvest is coming in. Indonesian nutmeg oil continues to maintain its stable pricing, putting the Sri Lankan producers in a pressure situation. Considering the abundance of raw material and stiff competition from Indonesia, prices are predicted to remain low.

USD 55.00 /kilo

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CEDARWOOD OIL

Juniperus mexicana USA

The USA has emerged as a significant producer of cedarwood oil Texas and Virginia. There are various oil fractions and compositions at source; however, demand and market dynamics continue to stand on steady ground. If there is not much fluctuation in the economy and considering the costs of operations, prices are set to remain unaffected. There were unprecedented downpours in Texas at the end of last year, which continued for over two months. As a result, there was an acute dearth of wood supply of both Texas and Virginia. The distillers consumed their entire thousand ton wood inventory, and are now in the process of replenishing their stocks.

USD 34.00 /kilo

CITRUS OVERVIEW

Citrus as a category has seen the price pressure being relieved across the board, with particular weakness in orange terpenes and d'limonene from the US market.

The large gap between orange oil and orange terpene prices persists, and curtailed demand from the US market for d'limonene has caused prices to fall further in the last three months. With Florida's new improved crop coming on stream now, further volatility is expected in the coming months. The best counsel is to buy on a need basis.

Most suppliers of distilled lime oil maintained their prices, despite a robust demand for the fresh fruit. On the contrary, demand for the oil has been sluggish. Cold pressed lime oil has seen strong availability from Mexico and Brazil. This may weaken further in line with lemon oil in the coming months.

The wholesome lemon crop against the continuing weak Argentine peso has finally seen some slackening of prices. Most producers were extremely reluctant to offer below US$30 per kilo before the new year; but the market is now seeing more realistic levels of around US$29 per kilo on an FOB basis.

Top quality tangerine oil from Mexico remains tight, and prices have remained the same. The Murcott and Cravo varieties from Brazil have enjoyed brisk business with stable pricing. Good availability of pink grapefruit oil has witnessed a price reduction. The gap in prices of white and pink grapefruits is significantly larger than before. Top quality white grapefruit oil still commands a premium with no sign of change in the coming months or even years. Availability of green mandarin oil from Italy and South America is strong; with restricted supplies of yellow and red mandarin. Top quality red mandarin oil from Sicily commands top-grade pricing.

LEMON OIL

Citrus limon (L.) Burm. F. USA

The USDA's March lemon production forecast for 2018-19 is 21.4 million boxes (776,000 MT), a slight decrease from 2017-18 output of 22.4 million boxes (791,000 MT). The quantity of processed lemons is also predicted to fall slightly to 155,000 MT. California continues to dominate production with some 93.5% of lemon output with Arizona accounting for the remainder. Californian lemon producers have faced a difficult year as a result of a hot summer, natural disasters combined with rising freight rates. Nevertheless, California's forecast production at 20 million boxes is only 1.2 million boxes below last year's production.

USD 35.00 /kilo

GRAPEFRUIT OIL

Citrus paradisi USA

This year the estimate for the main growing states in the USA is expected to increase by 24% as compared to last season. Florida grapefruit production is poised to show the largest growth with production of 5.4 million boxes compared with the previous year's 3.8 million boxes.

USD 95.00 /kilo (White)
USD 75.00 /kilo (Pink)

USA - GRAPEFRUIT PRODUCTION ('000 BOXES)

State	2016/2017	2017/2018	2018/2019
Florida Red	6,280	3,180	5,000
Florida White	1,480	700	1,000
Total Florida	7,760	3,880	5,400
California	4,400	4,000	4,000
Texas	4,800	4,800	6,300
Total United States	16,960	12,680	16,300

ORANGE OIL

Citrus sinensis *USA*

The latest US Department of Agriculture March forecast for the 2018/2019 Florida crop is 77.0 million boxes of 90-pound (40.8 kg). The forecast remains unchanged since December 2018 but is an impressive 71% jump from the last crop. Positive climatic factors, including the lack of hurricanes and a warm wet summer, combined with good maturation has facilitated this recovery. The non – Valencia production has been reduced to 31 million boxes while the Valencia crop is set to touch 46 million boxes. While Florida's orange crop forecast has held steady over recent months, projections for some other types of citrus have been scaled back. Total US orange production was estimated to increase year-on-year by almost 40% to 129.1 million boxes, of which California accounted for 49.5 million boxes. These were the first forecasts released since December because of the partial federal government shutdown. The new forecast for oranges remained unchanged from December.

Florida is also expected to produce 5.4 million boxes of grapefruit, down 1 million boxes from December's estimates, but still 40% higher than the previous year's crop. Similarly specialty citrus, such as tangelos and tangerines, are forecast at just below 1 million boxes but still 27% higher than last year's hurricane affected crop. The figures, down overall from the season's first forecast in October, continue to be an improvement on the 49.58 million boxes of oranges, grapefruit and other citrus harvested during the 2017-18 season, when the industry sustained heavy damage from Hurricane Irma. According to *charlottecounty.floridaweekly.com* the current forecast is also an improvement on the 2016-17 season, which produced a decades-low estimate of 68.7 million boxes of oranges.

USD 8.00 /kilo

USA ORANGE PRODUCTION AND FORECAST FOR THE 2018/2019 SEASON (MILLION BOXES)

State	*2016/2017*	*2017/2018*	*2018/2019*
Florida	68,850	44,950	77,000
California	48,300	45,400	49,000
Texas	1,370	1,880	2,600
Total United States	118,520	92,230	128,600

CAJEPUT OIL

Melaleuca cajuputi *Vietnam*

This oil has great demand in the domestic market, but the quality available falls short of meeting international parameters. It is a challenge to find a trusted supplier of 100% pure and natural oil.

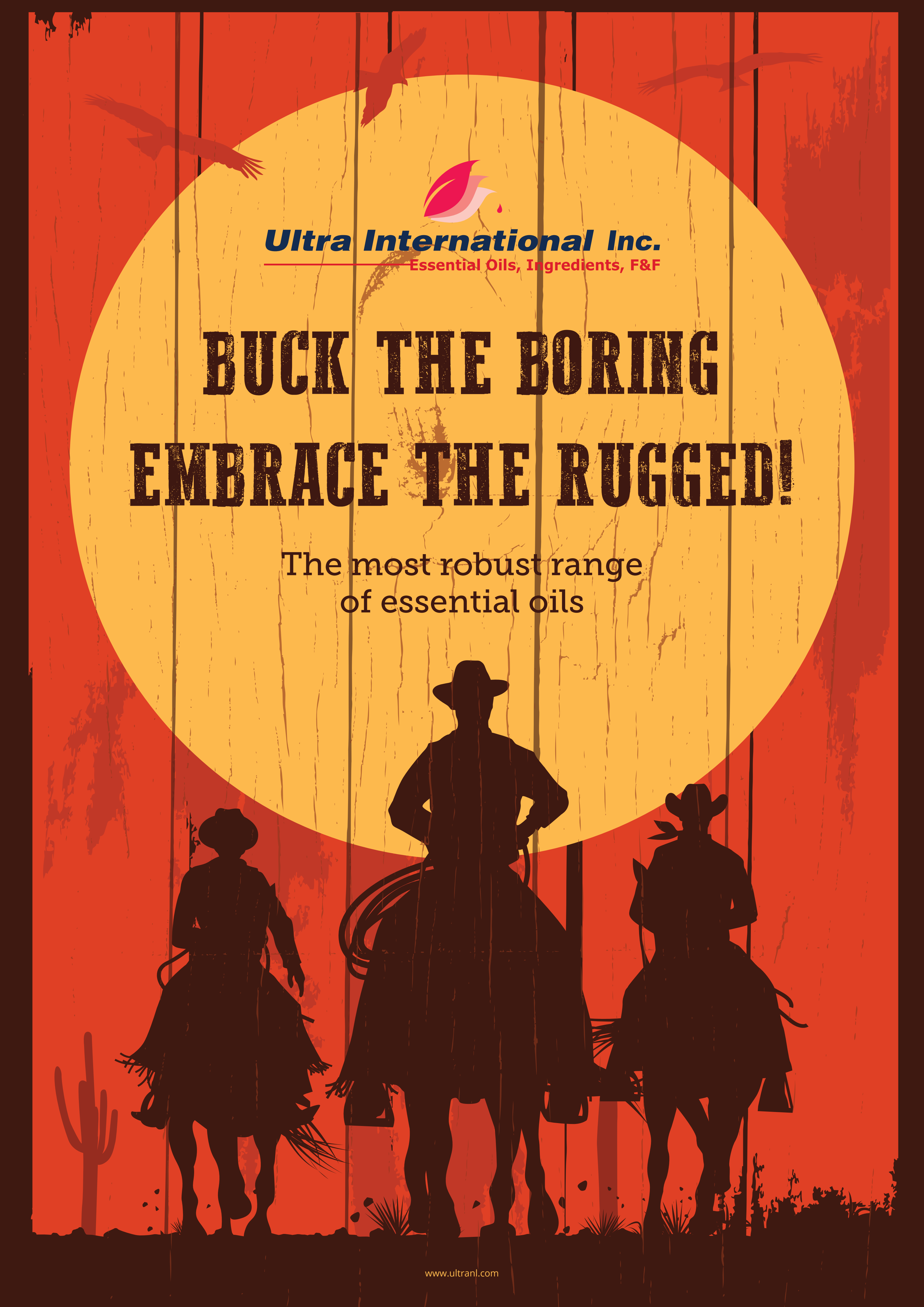
USD 44.00 /kilo

CASSIA OIL

Cinnamomum cassia *Vietnam*

Cassia has plunged to its nadir, with prices touching rock bottom.

USD 27.00 /kilo



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KARKAR'S NEW AVATAR
A PROJECT BY THE SANGANERIA FOUNDATION

A riot of colours, whitewashed walls with hard-hitting social messages, and a crowd pulsating with enthusiastic zeal, and a clean narrow village road – that was Rana Street a few days ago.

Surprising isn't it? One clean street in the middle of an industrial area in the planned city of bustling Ghaziabad in Uttar Pradesh, India stands out like a beacon of light for all the others. Standing proud in the Karkar Village of Ghaziabad, Rana Street is the result of 'Cleaning up Karkar,' a community development project by the Sanganeria Foundation for Health and Education and Ultra International Limited in collaboration with Humana People to People India (HPPI).

Bedecked in their finery, on 9th January 2019 women, children and volunteers from HPPI gathered at the local temple to welcome the guests. The attendee list comprised Mr Sant Sanganeria, Founder-chairman of the Sanganeria Foundation; Ms. Bhuvana Nageshwaram, Programme Director; Mr Prasenjit Mazumdar, Director-Marketing; Mr Dinesh Chandra, IT Head; Mr Ravinder Singh, Programme Coordinator and Mr Helle Lund, Head National & International CSR Projects, HPPI and other staff members. A renovated and refurbished Rana Street was inaugurated in all its glory with a gala ribbon-cutting ceremony and a host of cultural performances.

Rana Street is emblematic of all that can be achieved through pursuit of cleanliness and hygienic habits. It was upheld as an exemplary 'model street' with an aim to eventually redevelop and beautify the rest of the village. Speaking on the occasion Mr Sanganeria lauded the efforts of HPPI, and stressed the utmost importance of involving the youth and not just women and children, in this initiative.

Residents Manju Tomar, Bina, and Sarita Rana were thrilled to be invited to share their thoughts and experiences. 45 year old Manju Tomar, a member of the Gurudev women's group, talked about HPPI's community development projects since they started in 2016. Drawing attention to HPPI's endeavours in providing vocational training for women, young resident Sweety put forward a request for providing more options in computer training. Sweety, an enthusiastic ambassador of learning, is already pursuing a basic computer course under the aegis of HPPI and the Sanganeria Foundation.

The ceaseless efforts to promote health, hygiene, and girls' education have slowly but steadily begun to bear fruit. However, as Shayamanand, Project Leader of the community development project in Karkar says, "*The challenge is to maintain this development and make it a sustainable one.*" But every challenge can be overcome if we all come together and that is what HPPI and the Sanganeria Foundation are striving hard to achieve – to get the community together for the good of their own living.

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