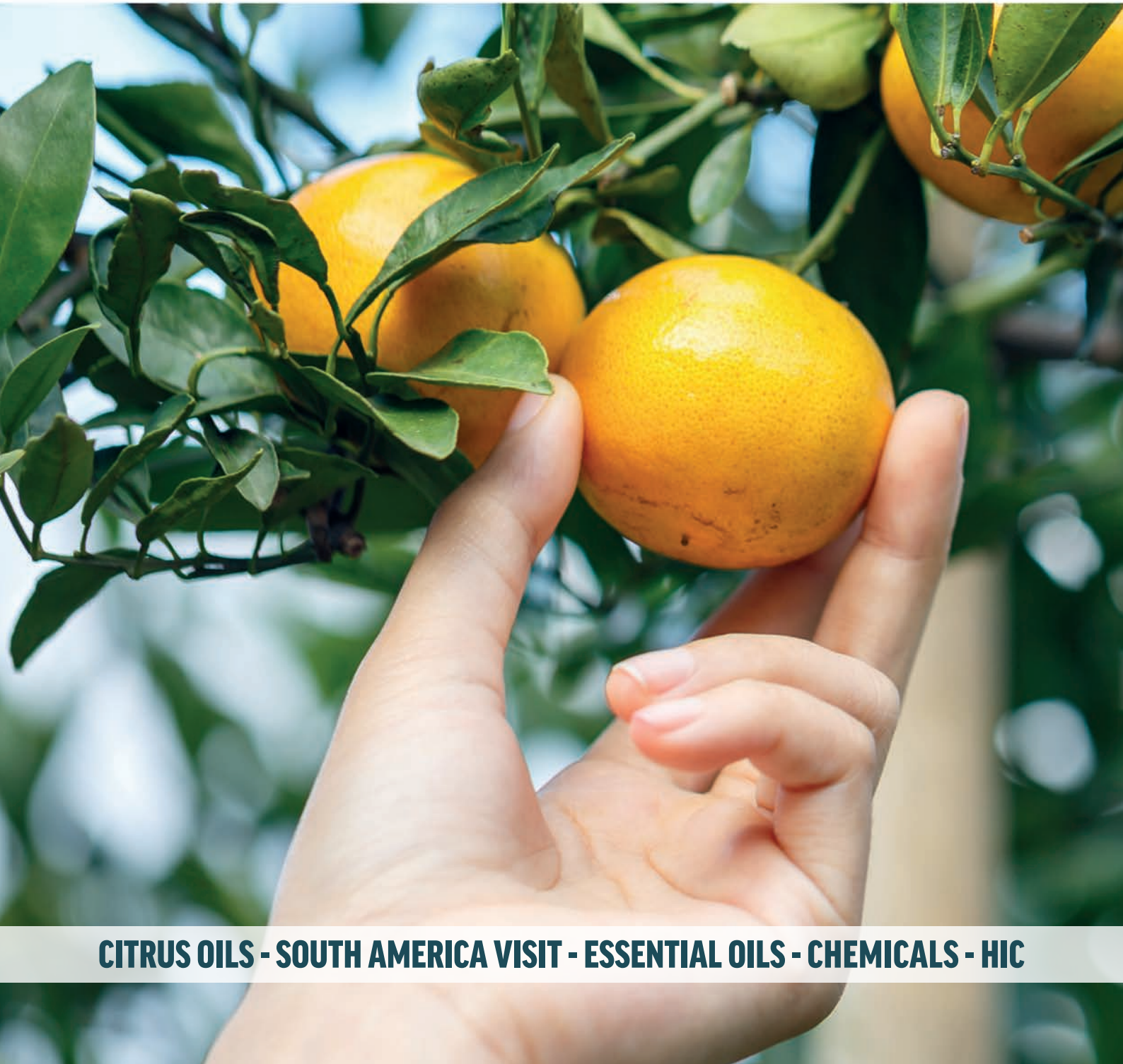
MARKET Intelligence

TREATT

NOVEMBER 2018



CITRUS OILS - SOUTH AMERICA VISIT - ESSENTIAL OILS - CHEMICALS - HIC

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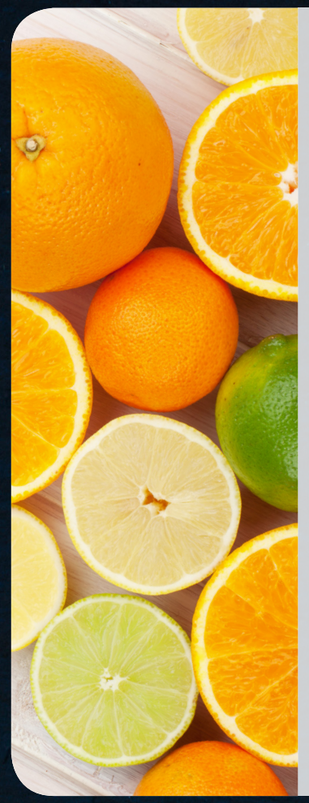
WELCOME



As promised, this latest edition of MI brings you news from our attendance at IFEAT and ICBC, along with a comprehensive market update. Following our recent reconnaissance tour to the major growing areas of the world, we share our thoughts on some of the key factors affecting the industry today.

Despite the ongoing challenges from unpredictable global weather patterns, issues with disease and ever-changing government regulations, we are cautiously optimistic. However, we remain an industry of co-products. Essential oil markets can just as easily be impacted by a change in demand from allied products as diverse as gum rosin, lime pectin and NFC juice, as they are by changes in raw material supply.

With continued focus the next two months promise to be exciting as once again our team travel the globe to meet with customers and suppliers. Treatt will exhibit at Food Matters Live in London, from 20-22nd November and at the FAFAI conference in Kochi, India, from 18-20th January. Maintaining close relationships with all our stakeholders remains of paramount importance as we continue to strengthen our strategic place in the market.

CITRUS *Oils*

ORANGE

Brazil

On 10th September the latest Fundecitrus official box count for Brazil was published, followed shortly thereafter by two major international conferences - IFEAT and ICBC. We were all apprehensively poised to understand the season ahead and the potential challenges to overcome. Post both conferences, the orange market has been extremely quiet, eerily so, with the market appearing somewhat stable at the moment but we are feeling weakness looming. Fundecitrus confirmed an update of 273 million boxes (mbx), a further 5.2% reduction from their first forecast, which would take the crop reduction figure from last season to over 30%. Although juice inventories were thought to be realigned from the bumper crop last season of 393 mbx, the perception now is that with a current season of 273 mbx, global juice inventories will fall back into a negative position. The continuation of orange oil, terpene and d-limonene buyers' taking a piecemeal approach is still evident leaving the question outstanding "when will the larger volumes of new crop oil be bought?" The answer may only come when the price gap between terpenes and orange oil returns to a more sustainable level, rather than the approximate $2.00/kg difference we are seeing currently, which is not palatable for many large consumers of orange oil volumes across the industry. Prices for orange oil remained firm for some time both leading up to and shortly after IFEAT and ICBC. However, the lack of demand and continual reduction in the price of d-limonene and terpenes is finally beginning to drag the oil market down. We also have been experiencing a large price gap between technical grade d-limonene and orange terpenes, as companies can substitute d-limonene but it is not easy to do so for food grade terpenes within the F&F market. However, that gap seems to be closing, with the price of terpenes drifting more towards that of d-limonene.

USA

On a positive note, we are delighted to see the latest USDA publication of this seasons 2018/19 crop at 77 mbx. This represents an increase of over 70% (45 mbx) from last season, although we must remember it was only 15 years ago the Florida crop reached 242 mbx.

There are currently no price indications on oil or d-limonene coming from processors who should start firing up their plants within the next four to six weeks. It will be January 2019 before we see oil and d-limonene really start flowing from what is now only six running plants in Florida.

This season's predicted box count is particularly refreshing considering the total number of named storms (10-16) that were predicted in May for the 2018 storm season. The National Oceanic and Atmospheric Administration (NOAA) forecasted 5-9 of the named storms could become hurricanes (winds of 74 mph or higher), including 1-4 major hurricanes (winds of 111 mph or higher). The season was far more active than expected, being at the top end of early predictions. 15 total storms and eight hurricanes were recorded, two of which were major hurricanes.

Hurricane Florence made landfall near Wilmington, North Carolina on Friday 14th September 2018 with speeds of up to 90 mph. Although it was downgraded to a tropical storm it was the continuous abundance of rainfall that proved devastating as rivers burst their banks causing flooding in many areas. Particularly affected were homes and businesses along the Waccamaw River, which spans both North and South Carolina.

Hurricane Michael made landfall near Mexico Beach on the Florida Panhandle as a category 4 storm on 10th October 2018, being the first category 4 storm ever recorded to hit the north east gulf coast. Horrifically many people from the hardest hit areas are still unaccounted for. Many along Michael's path from Florida's Panhandle, through Georgia to the Carolinas and Virginia are still cleaning up and taking stock of destroyed and damaged buildings as well as downed trees and power lines. It's estimated the total property damage will be more than $4.5 billion. The United States' major citrus growing regions luckily escaped harm this year, but we are reminded by these storms that weather remains the largest threat to all our crops throughout the world.

Another constant threat to our crops is pests. Whilst the battle with greening continues, and everyone remains hopeful for a cure, there have been recent findings of what could become another pest for growers to battle. Early signs of the Ambrosia beetle are apparent, although growers are awaiting confirmation from tree fungus samples recently collected for laboratory analysis. The beetle is attracted to the scent emitted by stressed trees, burrowing into the trees, laying their eggs, and cultivating a series of fungal deposits which acts as their food source. In trees that are already in poor conditions, these beetles can certainly be a nail in the coffin; yet another challenge for Florida farmers. Once the beetles burrow their way into a tree insecticides and fungicides are ineffective against the pest, so clarity for the farmers is essential and should be coming soon.

California's crop is also predicted to have another strong year. Although about 95% of Californian fruit goes into the fresh fruit market (the complete opposite is true for Florida), their ability to provide a strong supply base towards fresh fruit is positive, allowing most of the US fresh market to be serviced by California whilst processing comes from the Florida fruit.

Continued on next page

Mexico

As the season got under way in October with early and mid-varieties, indications suggested a potential crop of 4.3 million metric tonnes (mt) of fruit, with approximately 55% destined for processing. This implies good production volumes of orange oil are possible.

Qualities are expected to be good with early mid (accounting for approximately 20% of total crop) and Valencia varieties (accounting for the other 80%) indicating good aldehydes. The pressure may well be off this season for both fresh fruit and processing should Florida produce a 77 mbx season. Mexico, however, was also challenged by hurricanes during the season. Hurricane Willa hit landfall near Isla Del Bosque, Sinaloa (Western coast) of Mexico roughly 50 miles south of Mazatlan on Wednesday 24th October 2018. This storm in the early stages was registered as a category 5 but thankfully reduced to a category 3 before making landfall. The storm brought major surges, heavy rains and wind speeds up to 120mph off Mexico's pacific coast. This storm is likely to have had an effect on key lime and Dancy tangerine crops, but as of now we await further assessment of any damages.

LEMON

Argentina

The realisation of a good crop of 1.15 million mt surfaced as we moved into the third quarter of 2018, alongside the price stabilisation of both fresh and processing fruit. This allowed supply and demand to realign with signs of a fluid supply chain on the horizon for season 2018/19. The peso has continued to devalue against the US Dollar as investors move monies out of the country. In one of many initiatives by the government to stabilise the economy, an export tax for lemon oil was imposed on processors. This works on a sliding scale and is capped at 12%. Currently this means a potential $35k additional cost per full container load (fcl), to processors. The only alleviation for processors to this, apart from hoping it's short term, is the benefit of a dominant USA export market, where their costs can be partially recovered by bringing more US dollars back into the Argentinian economy. Some processors are using this as an opportunity to invest into their companies' infrastructure and helping their employees by realigning salaries with current economic conditions. It is expected that oil markets may ease in coming months as Spain and Italy come on board coupled with Argentina having also produced enough volumes to service demands until new Argentinian season May 2019. We are finding, however, an increase in both the demands and prices of lemon terpenes and there is quite a large supply gap there to fill.

Spain

As we approached the new season, the first indications from Ailimpo (July 2018) for season 2018/19 was positive at 1.3 million mt (biggest in 10 years) as Spain continues to lead fresh fruit supply to the European market and remains the second biggest processor of lemons globally. As the Fino harvest got underway in September, estimates of as much as a 14% increase were thought due to positive flowering conditions. With yields of fruit per tree well up, a Fino crop of 920,000 mt is not out of the question.

Verna variety, which follows Fino, also looks very promising, with a potential of 380,000 mt, a substantial increase of over 80% compared to last season although around 40% up when compared to an average harvest.

With a positive outlook this season as both varieties increase, processing markets could well see material consistently available until Argentina comes back on line in May 2019.

USA/California

The California coastal region lemon crop was affected by an extreme heat wave in July. This region, thanks to the continuous ocean breeze, does not usually experience the overly high temperatures that are quite common for inland areas. But extreme highs in July coupled with a weaker air flow brought very unusual conditions to the lemon crop resulting in a coastal crop reduction of 20%, with overall California lemon (coastal and desert qualities) down by 12-15%. The increase of fresh fruit prices is always a concern for processors, and with a reduction in the total crop we would normally expect to see prices of fresh lemon rise. However, because Argentina is now allowed to import lemons into the US, this may keep price rises for the fresh fruit, and consequently industrial fruit, to a minimum. California lemon oil is highly sought after often for provenance and taste preference and because of this we expect this market will remain more bullish than some other lemon origins.

Italy/Sicily (Lemon & Blood Orange)

With eyes very much on the new season, it was envisaged this year would see a standard lemon crop, although substantial persistent rain over a three-day period (19th-21st October 2018) caused significant damage. Lemons were not as affected as other crops such as blood orange thanks to the regions where they are planted. Some say it was the heaviest rain fall in such a short period in over 60 years. Newly planted blood orange trees, not even at the stage in life of bearing first fruits, have been significantly damaged as water surged into the valleys where many of the groves are located. Etna valley was one of the areas most significantly impacted as floods rushed through washing away many young trees, which will now need to be replanted. With expectations already of a lower crop due to rains earlier in the season that damaged first flowering, the second period of significant rains could now mean the crop is over 70% down on a normal year. The damage to the crop from this storm, in addition to the damage caused by flooding last year, will result in a very short blood orange oil market with strong expectations of price increases.

DISTILLED LIME

Mexico

To recap: lime processors normally rely on three revenue streams - the essential oil from the peel, dehydrated peel for the pectin industry, and the juices. Historically these streams have all been relatively stable in their contribution levels to the overall business. The pectin market, however, remains flat with prices still averaging around $800 per mt. This revenue stream for processors continues to be very concerning as time passes. It's clear from a recent trip to South America this summer, the extent of dry peel inventories is vast. Industrial fruit prices have also seen no improvement and continue to incrementally rise to levels of $100 per mt. Oil demand appears to be slow and much lower than normal, as such prices are showing signs of further softening. Harvest and processing volumes remain on target to be approximately 35% down on last year.

The above is very concerning for processors and customers alike, as we play a part in supporting and ensuring a robust, sustainable supply chain. It's clear from the indicators this is a market under pressure. Is it when inventories in parts of the supply chain level out that this market takes a fundamental turn upwards? As customers, we all want to avoid and reduce peaks and troughs in markets, however we worry that we could quickly get into a situation where demand outweighs supply overnight as processors have been forced to cut back on processed volumes over previous months to survive. We remain very vigilant in regard to news of distilled lime oil.

Peru

Smaller picking and processing is taking place at present, with the main processing season not starting until January 2019. Early indications of a drought could be on the horizon if rains don't start by December or at least early in January which could have a negative impact on the new season's crop. Couple this with a 20% reduction of water rationing implemented by the government earlier last month and we see a real challenge for the new season ahead, especially considering Piura, a major growing region of limes, is one of the areas under allocation. Despite this industrial fruit prices remain up to 40% less than neighbouring countries.

TANGERINE

California has just started processing clementines and will continue until late January. The crop is up at least 30% from last year, a function of the natural cycle of citrus trees in that region. California clementine had a lower crop last year, giving the trees a bit of a break, but those trees are now expected to deliver an above average yield. There is however, an increasing demand for tangerines from the fresh fruit market. Tangerines, also known as "easy peelers", are starting to be served in many schools, particularly in the United States, to encourage healthy eating in children. With such emphasis on the fresh fruit market, fruit left for processing may prove costlier in the coming months.

The Dancy tangerine crop in Mexico is looking healthy and both production and processing, which will commence in December, are expected to be in line with expectations and last year's crop. Prices for this oil are stable.

GRAPEFRUIT

The official USDA forecast for Florida grapefruit production is 6.4 mbx, but only 17% of that will be white varieties. Grapefruit continues to be a trending flavour, but the heaviest demand is still for white profiles rather than pink. As such the price gap between the two continues to expand with white remaining extremely firm and pink still very high but softening.

Mexico started processing grapefruit in the middle of September and will process until late November/early December. The total crop is comparable to last year, with typical Mexican quality oil expected to enter the market January 2019. As is the case in Florida as well as Texas, the US's other major grapefruit growing region, most of the grapefruit Mexico will be processing are red and pink varieties. It appears that whilst the difficulties surrounding this market have eased some, it will remain under pressure.

EXPRESSED LIME

In Mexico, the Persian lime crop will be much smaller this year. During the season trees blossom every 60 days, which allows processing from June through October, with usually two to three different blooms available. The June/July crop (peak season) was heavily reduced because of a lack of rain in May, followed by a September/October crop which was also reduced but this time for too much rain. There has been an oversupply of lime oil in the market over the past three to four months, but we feel prices have likely reached their low and with Mexico's reduction and Brazil's crop still some four to five months away we may even see a slight uptick in this market.

SOUTH AMERICA *Visit*

CITRUS *Oils*

With continuing uncertainties, challenges and volatility in the citrus markets, the Treatt Global Citrus Team took the opportunity in June to visit three of the main South American citrus growing countries - Peru, Argentina and Brazil. With a view to further develop existing strategic alliances, gaining first-hand knowledge of the challenges that growers and producers are facing, initiating new supply relationships and, most importantly, ensuring a robust, sustainable supply chain for our customers our team were set for a fantastic 15-day trip.

The team tailored the trip to allow them to focus on each countries' citrus competences, developments within the supply chain, and product and processing capabilities. We visited over a dozen different suppliers across the three countries ranging from the biggest oil/juice producers in the world right down to those who are running with only half a dozen extractors, all of which are very important to ensuring a healthy supply chain. With continued focus, we sought to become more educated and integrated with those suppliers we count on as in doing so the Treatt team strive to strategically guarantee stability and continuity of supply for our customers. In this issue we share some of the key factors affecting the industry today.

Citrus partners

PERU

Peru is one of the up and coming citrus producers of the world as some processors are diversifying away from more volatile regions as part of business continuity. The economy there, unlike other South American countries, is much more stable and the topography gives perfect conditions for citrus crops. Undeveloped land is attractively priced, alongside lower labour costs and potential year-round bloom makes it the perfect alternative for South American processors to ensure a suitable future. The Peruvian government works alongside private developers to allocate appropriate land for industry and assists those who were tenants on this land in relocating, with additional incentives such as work opportunities when industry developments are complete. Natural rainfall is very low but Peru has a canal system which directs rain water from the Andes mountains to the northern regions where it is stored in large reservoirs ready for allocation. Processors without their own natural wells store a minimum of three months water at any one time to ensure stability of their own crops. At this time there are no issues with pests unlike other neighbouring countries, a main contributing factor to this is the temperate conditions and lack of humidity all year round. With good yield expectations per hectare and the potential of all year-round blooms, Peru looks set to be a hot topic over the forthcoming years.

Peruvian canal system

ARGENTINA

The economy continues to be plagued after years of government over spending. Under the economic reform of President Mauricio Macri the peso has devalued to unprecedented levels. With inflation soaring to levels of 40% locals have seen their salaries devalue to the same extent in the last 14 months. Life for many Argentinian people is extremely tough, with desperation at the forefront, yet positive hope for the future. With 12 lemon processors located in a small region of Argentina, the market is densely populated. Some processors are targeting new land in cheaper regions to grow more lemons, some are considering mergers as a strategy to ensure a firm position within the industries food chain, others are choosing to diversify into other countries and invest for the future.

BRAZIL

Orange market share remains predominantly with three major processors, where focus appears to be towards NFC juice having the international logistical infrastructure in place to support the growth. Supply chain integration is underway where traders of both juice and oil are merging with growers to build new processing plants. There also seems to be a trend of Brazilian processors targeting growth in lemon, from growing more fruit, to increasing their footprint in the fresh fruit markets, to processing for juice, oil and peel to supply global markets. The swapping of processor knowledge in domestic markets as well as export markets could be an early indication of potential global integration for the future.

ESSENTIAL *Oils*

LITSEA CUBEBA/CITRAL (CHINESE)

For the second consecutive year the berry harvest is down in China. The 2017 harvest was reportedly reduced between 10 and 20% compared with previous years' and news now is that the 2018 harvest is 20% down again. This equates to a drop from 900 mt to somewhere between 600 and 700 mt over the past two years. Demand for natural citral from major global F&F companies remains strong from origin ensuring prices stay firm, though a slight dip may have been noticed some weeks back, which was due solely to currency exchange, not the actual price of the oil. The growers, who have now formed co-operatives, have had a taste of the high prices and with demand strong they see no reason to reduce their prices forfeiting their profits. The Environmental Protection Agency (EPA), however, are now also targeting the farmers and co-operatives that distil the raw material to crude oil as their waste water has been allowed to flow into rivers. The EPA is demanding that water treatment plants are installed, which of course comes at a huge expense and those who do not comply simply have their electricity and water supply cut off. As with so many Chinese markets, we will be watching carefully as these costs are likely to be passed along to our industry.

ANISEED/ANETHOL (CHINESE)

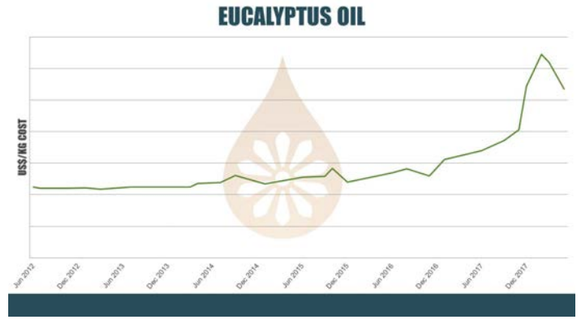
It has been a tough year for this oil with the continuous battle between the spice market and oil production always resulting in the spice market taking top priority. Although the harvest is almost complete it seems the output is, once again, smaller than average from the major growing areas in South Eastern China. The final volumes are yet to be confirmed and availability seems to have improved for now, but sadly the prices remain bullish.

GINGER (CHINESE)

As anticipated in our previous edition - prices have indeed softened but the expectation is that this will be short lived. The production process for ginger oil results in high levels of residues which have no commercial uses or value. In the past producers have just buried these residues, but the EPA have become wise to this and forced many processors to halt production. This coupled with the upcoming winter, which usually forces gas to be diverted to domestic use, is bound to edge prices upwards as availability becomes more restricted.

EUCALYPTUS (CHINESE)

Looking back, historical pricing for this oil is shocking to say the least. As you can see in the graph below the cost of this oil remained stable for years but in 2017 everything changed. Various issues have collided causing these price hikes including the migration of young people to the cities, new EPA regulations, and lack of government support for anything eucalyptus related. Prices peaked early 2018 and have softened since then as a result of slow demand as well as the currency exchange. As stock levels are depleted and newly processed oil enters the market, we could see pricing stabilise.



CASSIA (CHINESE)

Weak demand for this oil has pushed prices to a historical and unsustainable low, with some oil selling at a loss. Both collections and processing have slowed as the economics of labour and production expenses versus selling prices simply do not make sense.

GARLIC (CHINESE)

An abundant harvest late last year allowed the price of this oil to drop way below that which anyone could have expected. However, along with the plentiful supply came a plethora of quality issues, which proved very time consuming and frustrating for many as the markets separated into specific price points for premium versus so much of the lower grade material. These low prices were never going to be permanent as the cost of bulbs, labour, production and environmental factors remain high and selling prices too uncomfortably close to those costs for a sustainable future. As such the price of the Chinese garlic oil has now bottomed out and is on the rise again. We will be paying close attention to all the factors surrounding this market as there is a great deal of uncertainty on when and where it will stabilise.

CHEMICAL *Ingredients*

ETHYL BUTYRATE

Ethyl Butyrate supply remains difficult due to the raw material supply constraints and factory processing restrictions we have been talking about for months now. At present it is not clear when the situation will improve as strong demand continues. Despite this we do have some availability and encourage you to talk to your Treatt representative.

STRAWBERRY FURANONE

The shortage of Strawberry Furanone has been amplified recently due to a large Chinese manufacturer being forced to shut down temporarily by the government. As the backlog of demand grows against the imbalance of supply, pricing for this material is expected to continue to rise going into 2019.

CITRAL DERIVATIVES

We are beginning to see some offers for BASF manufactured materials, however pricing for these chemicals has soared compared to the pre-fire pricing in 2017. The huge volume of back orders that require servicing prior to new orders being placed coupled with heightened demand have led to these inflated prices. Markets should ease for a number of these materials over the coming months, however it is unlikely that they will return to historic norms.

PALM OIL

We have seen further stability within the crude palm oil market since our last update in May, which is having a positive effect on the fatty acids product range. Prices for crude palm oil were over $600 per mt back in May, but September saw prices fall by 12-13%. This decrease is now starting to feed through to the derivative products albeit slowly. As prices are beginning to soften, however, we are now seeing longer lead times from source because of larger demand, but look forward to some stability returning in the coming months.

CINNAMIC ALDEHYDE NATURAL

With a recent large producer being closed due to the Chinese environmental regulations, this product is one to watch in the market now. Prices are yet to respond because the price of cassia oil, which is the raw material for cinnamic aldehyde, has fallen. We will continue to watch this market carefully for any movements.

LACTONES

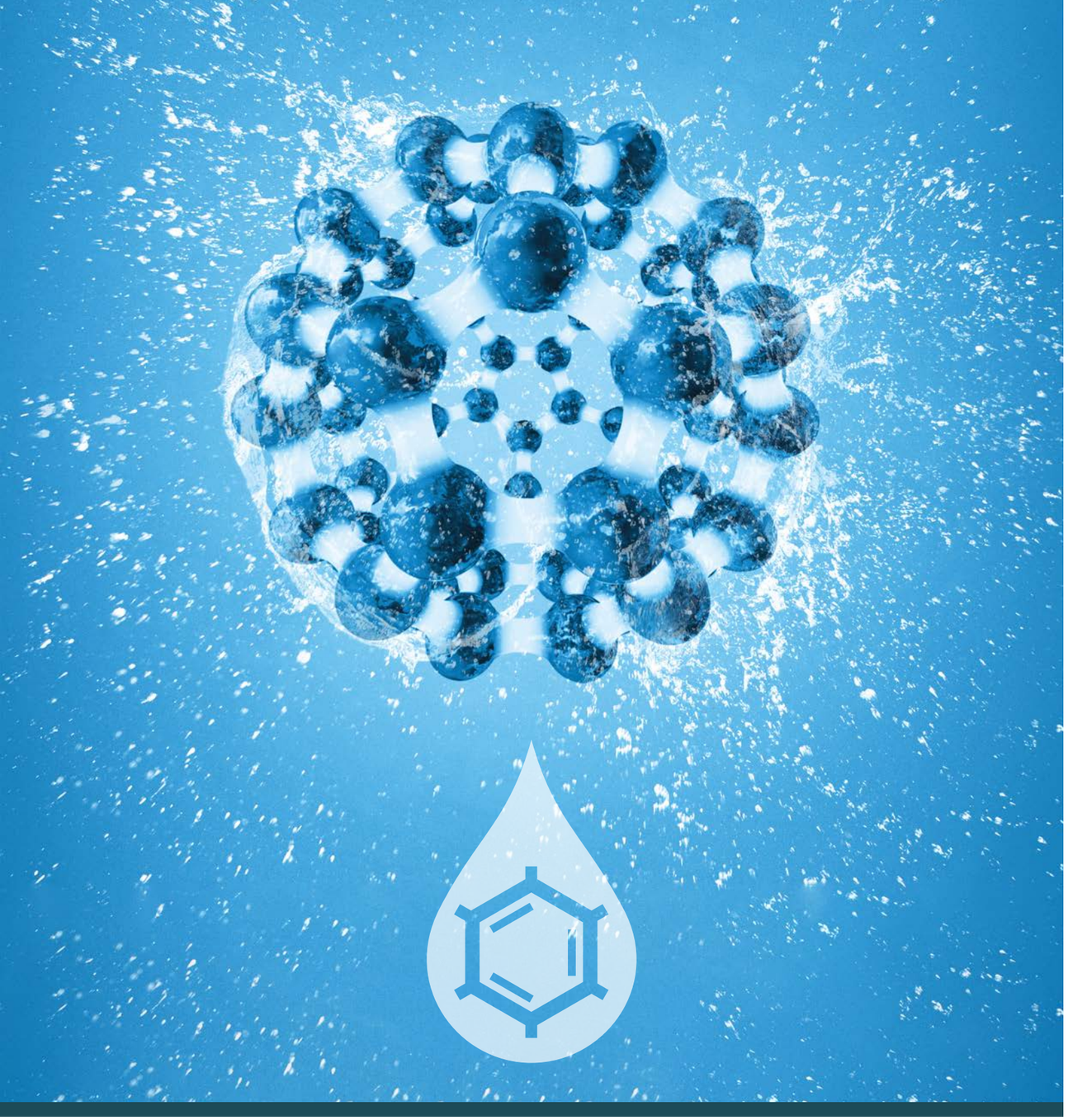
Following the instability of this market over the last 12 months we are starting to see small sighns of relief on some of the products in this range, particularly the larger products - C-14 and C-18. Material is a little more freely available with prices stabilising or even dropping slightly because of a large producer increasing their production capacity. Hopefully this increase in production will level out the imbalance of supply and demand that has dominated this market in recent times.

TURPENTINE

The last few months have seen the demand of gum rosin remain very flat, which is causing further price increases of the by-product gum turpentine and its derivatives. Prices for products such as beta pinene and alpha pinene have risen again, surpassing what the market thought was a ceiling price for this raw material, with no end in sight for when the raw material will stabilise or if it will ever fall back to the levels of years' past.

CLOVE DERIVATIVES

The clove derivatives are still suffering in both price and availability due to strong demand and limited material availability. Leaves are currently being harvested, oil produced and some materials are slowly making their way to market, although it's too early to predict what the final volumes will look like this year as fresh material is being snapped up. The weather, as we know, can be unpredictable and heavily influence yields, so we never assume a positive outcome until all raw materials have been processed.



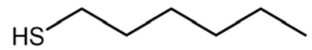
HIGH IMPACT *Chemicals*

A TASTE OF HOME

Lifestyles are changing globally, and palates are evolving, increasing the demand for food that is quick and convenient to get on the table but tastes like a 'home-cooked' meal. Key notes that are essential for that freshly cooked taste experience can be lost in large scale manufacture but our range of specialty High Impact Chemicals provide those highly desirable notes in a cost-effective way.

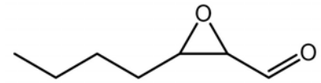
1-HEXANETHIOL (FEMA 3842) CAS 111-31-9

Freshly roasted meat, nut and vegetable preparations are enhanced to provide more authenticity from inclusion rates ranging from 0.1 to 0.5 ppm. Nature identical in roasted beef, pork and chicken.



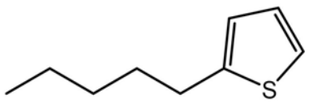
2,3-EPOXYHEPTANAL 10% IN TEC (FEMA 4658) CAS 58936-30-4

A key molecule for a well-rounded fatty profile, applications include citrus varietals, soft cheeses, ghee and fatty meats such as lamb. Contributing a much stronger flavour profile than odour, typical usage ranges from 0.1 to 1.0 ppm.



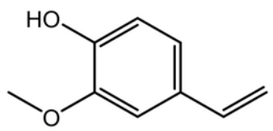
2-PENTYLTHIOPHENE (FEMA 4387) CAS 4861-58-9

A whole host of notes can be enhanced or reintroduced by inclusion from 0.2 to 5.0 ppm. Nature identical in soy bean, french fries and roast beef, this is invaluable for yeasty, minty, fermented notes in cheeses, meat, fruit and dairy alternative products.



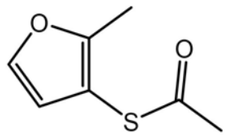
2-METHOXY-4-VINYLPHENOL (FEMA 2675) CAS 7786-61-0

Sweet, smoky, brown flavours are raised in complexity with inclusions from 0.05 to 1.0 ppm. Nature identical in a host of foodstuffs ranging from raspberries to rice cakes, this is a multi-faceted molecule that enhances clove, chocolate, tea, vanilla and rum flavours - plus many more.



2-METHYL-3-FURANTHIOL ACETATE ≥99% (FEMA 3973) CAS 55764-25-5

Meat flavours including beef and chicken gain richness when employed at levels ranging from 0.1 to 5.0 ppm. This product can be used in gravies and sauces in addition to returning a packaged meat to its 'freshly cooked' flavour profile. It is nature identical in passionfruit which explains its use in tropical fruit formulations at extremely low ppb levels.



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