

NEWSLETTER
Issue 98 - May 2022



Dear Oliveti Members

It's great to see Oliveti is in such fine shape. We have several new members who have recently joined and quite a number showing interest in joining our great organisation. So, a big welcome to Maureen O'Higgins, Ron Browne, Julie Bell & Georgia McKeefry and Jane & Scott Anderson. I hope I have not left anyone out!! We look forward to you being part of Oliveti and bringing your experiences and interest which all helps to strengthen our organisation.

What a great field day we recently had at Lesley and Ewen Hutchinson's olive grove in Mangonui. We had one of the biggest turn outs that I can remember which was helped by Lesley and Ewen's neighbours being invited as guests (who all have olive groves locally) and also guests from Olives New Zealand. On the subject of Olives New Zealand, we have agreed to share reciprocal invites between our two organisations. We will keep you informed on their upcoming field days.

The field day reinforced why such events are so important. To be able to connect with like minded people, to share the success and failures in our groves, to gain information and listen to new initiatives growers are trying on their groves

My thanks firstly to Lesley & Ewen for hosting the event and sharing with us their amazing property. What a beautiful part of the world Mangonui is. Lesley & Ewen presented a very informative talk on how they started their olive venture and the details of the productivity of their olives over the years including an instructive walk through their grove of 400 trees.

We were also able to present to John Bishop his Life Membership award for his contribution over many years to the success of Oliveti. John has been at the forefront of many of the Oliveti initiatives and is currently, along with Peter Crelinsten, involved in the Healthy Soils - Healthy Trees programme in the Kerikeri area.

We also had a very informative talk from Peter Crelinsten on polyphenol results from 2018 to 2022 along with a question-and-answer session on any olive grove questions. The open forum question and answer session is a great way to create discussion and we should keep this going at future field days.

John Bishop also spoke about the lack of pressing facilities in the Northland area and the need for a new press facility which he suggests could be formed on a Co-op basis. John will provide further information on this in the future.

After the walk-through Lesley & Ewen's grove we then had a short car ride to Keith and Anne-Marie Brunt's olive press where we were given a very professional presentation on the function of their olive press. Not for the faint-hearted but something that they have made a success of. Thank you, Keith and Anne-Marie.

I would like to thank all those who contributed to the field day and also hope that those who attended have gained some more knowledge and are re-invigorated in the care of their olive groves.

Most of us will have completed our olive harvests by now and from discussion at the field day there were varied results with some having a great harvest and others, not so. It would be interesting to know the results of all our members including region, olive varieties, average kg per tree, and % yield etc. This may lead to more discussion as to what we did through the year to either give us a good result or not.

I also wish to advise that Christina Watson who was nominated as Treasurer at the AGM in February is no longer able to continue in that position and Murray Thoms will step back in and take over that role.

We do need someone within the Oliveti membership to be prepared to take up that role. It is not onerous and would be supported and mentored by Murray. The role also requires you to become a member of the committee. Other than the book-keeping/accounting functions role, it requires a once-a-month committee Zoom meeting for about 40 minutes. Please seriously consider this. For the ongoing success of the club we need members to take an active part. Without a committee and people fulfilling these roles Oliveti would cease to function.

So, on that note, I hope you all have great success in selling your wonderful olive oil. Do not forget the Shopping Cart as a way of selling your oil through the Oliveti website and remember that your membership entitles you a free entry to the Olive Awards. Pauline will advise on the details of the Awards in the next few weeks.

See you at the next field day

John Pearson (Chair)

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OLIVETI Field Day – 22 May 2022

Hosted by Ewen and Lesley Hutchinson - Oruaiti River Olives, Mangonui

The sun shone brightly as we arrived at Lesley and Ewen's Oruaiti River Grove for the first OLIVETI field day of 2022. Originally one of the largest plantings of olive trees in New Zealand, Ocean View Estate on the outskirts of Mangonui boasts close to 30,000 mature trees spread across 40 groves between the Oruaiti River.

The day kicked off with Chairperson – John Pearson offering a warm welcome to all, including several new members who were attending an OLIVETI field day for the first time. John also acknowledged and welcomed the many guest visitors from neighboring groves in Mangonui and further afield who had come to find out more about OLIVETI. This welcome was followed with a sumptuous, shared lunch and provided further opportunity for members and other attendees to share knowledge and experiences. We then enjoyed a brief history of the Grove from Ewen & Lesley, had a tour of the grove and concluded with a visit to the local Press House.



Olives in Doubtless Bay

In the Mid 1990's Hihi, Taipa, Oruaiti and Karikari Peninsular estates were first established. In 2000 Ocean View Estate was developed by Max Beckham who later achieved notoriety as the former Mangonui farmer who led a double life as a drug baron and who was convicted and sentenced to 13 years in 2011 for serious drugs charges on top of his previous seven-year jail term for kidnapping charges.

Comprising 130+ hectares and 40 groves, the J5, Leccino and Frantoio trees were planted in a 5:1:1 ratio in most groves which followed an Australian model - 8m between rows and 5 m between trees as this allows for machine harvesting. A 'Grower' Cooperative with Olive press was also established but failed thru infighting early on.

Lesley and Ewen Hutchinson and Oruaiti River Olives



Lesley explained how their Olive grove experience started in 2006 when she and Ewen used to come up most years until 2014 to help sisters' harvest olives – They

lived two properties up Frantoio Ridge Road from where Lesley and Ewen now have their grove. Some years they would make return visits to help with pruning. "That was all care and no responsibility" says Lesley.

"In 2014 a drive to the end of Frantoio Ridge Road changed everything. A 'For Sale' sign on this property was all it took for Ewen to say *This is a dream come true – a grove of my own*". Lesley went on to tell us how they then purchased the block with 650 olive trees that had previously been remotely managed for 10 years. "This was a complete shock to the system as we had been retired since 2006 and now had to completely change our lifestyle and the way we lived". They continued living in Auckland but each month they would travel up to Mangonui to mow the grass, work on completing the interior fit-out of the Total-Span shed so they had somewhere to live, and a place to store all the gear and equipment for the grove.

When that was finished our three adult children said; *Dad, if you don't build a house now you will be too old!* Ewen didn't need any more encouragement. He designed the house and Total-Span built it to lock-up stage. Ewen completed the interior and Deck etc., himself finally completing the work in 2017.

"We don't actually live here permanently" said Lesley, "although Covid has changed our thoughts and last year we spent 6-months up here. We now try to spend two-weeks a month here."

"Mowing a steep property like this was quite a challenge for me as I did all the hand mowing. The banks were a real nightmare and eventually Ewen realised this and bought me a ride-on which made life much easier" says Lesley. "This is now my favorite job on the grove. My next challenge was to get rid of all the difficult to mow places – 'Gardens' make life much easier than mowing steep banks. Also, any olive tree that looks like it isn't doing well, gets the chop! They're replaced with fruit trees and the grove now has around 30 varieties of fruit trees."



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Proud new owners of Coast to Coast Trading Co.

"To-date we have been 'Helpers' for eight years, and 'Owners' for eight years. It's now definitely about making the grove more manageable as we get older so that we can continue to keep producing our oil" concluded Lesley.

Grove Management

"Until the Covid lockdown, we usually visited one week a month - except harvest, so easy maintenance is essential" says Ewen. "We can strip spray weeds which is not possible on some of the neighboring groves which are much steeper and erosion becomes a problem".

The previous owner used lime, Boron and Yaramila (NPK) mix yearly. Andreas Kurman of Far North Envirolabs gave us a new regime. His research of olive needs on the Karikari Peninsular showed an Oct/Dec/Feb regime worked best and recommended RockPLUS soil remineraliser and NPK trace elements. "We did a three-year trial this way but the olive yield on the trial and control trees were similar on average, so now we don't use RockPLUS. Our soil is tested every two-years and I apply the required blend with my spreader" says Ewen.



Spraying

"Anthracnose and Peacock Spot on Leccino are our biggest issue" says Ewen. "Carbendazim Fungicide spray every 10 days while flowering was recommended by Andrew Priddle of Wairarapa Olive Harvesting and this appeared to help this season but more experience is needed".

Pruning

Our trees were in a 'Pyramid' style but we changed to 'Vase' in our first winter. We have gradually raised the skirts as the lower fruit tends to be smaller and green. Last year, Neil Smith from NS20 showed us how to prune for 'shaking' which basically meant allowing a new branch to develop each year and removing any horizontal branches. We still have some way to go as after our 'Shake' this year, we still had 5-8kg left on many J5 trees! Overall, we averaged around 30kg/tree.

Flowering

"No Flowers – no fruit is unfortunately true" says Ewen. "On our grove we now have 200 trees that have never flowered despite special soil analysis and fertilising – we live in hope! With our J5 and Frantoio, flowering is 90% biannual and there is good correlation with fruit yield. Leccino may flower every year but fruit set is variable. We had two flowerings this past season and managed three buckets of Leccino!"

Harvesting

Our systems have changed as our trees (and us) got older. Initially we used hand rakes and 12V Clappers and could achieve up to 750kg/day. The last four seasons our heavy crop trees have been shaken with a 20-28kg yield/tree. This season our heaviest trees yielded a bumper crop of over 35kg.



Equipment

The three local press houses generally all require de-leafed fruit and can press 300-1000kg/day so most of us have a de-leafer/blower and trailer. Olivado can process 6-8 tonnes per day and don't require de-leafing. However, a forklift and truck is required to transport the palletised fruit so involves more costs/risk.

Management

Ewen and Lesley rack the oil after 2-3 months storing it in 50 and 100ltr stainless steel fustis. The oil is then blended and mainly sold in 50ltr fustis to Restaurants with about 30% sold in 750ml bottles and 5ltr cans in the Auckland market. We do not attend Farmers Markets but prefer to leave that to the true locals.

Conclusion

Ewen says, "It has been a lifestyle change but we still have fun and this is a great place to spend a Covid Lockdown!"



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Former Fighter Pilot Steers Loopline Olives to the World Stage

In the Wairarapa, Stephen Davies Howard has taken advantage of the Mediterranean climate to produce award-winning olive oils.

Trekkers and tourists descending from the Tararua Range in the south of New Zealand's North Island may arrive in the small village of Opaki. Located in the fertile land of the Wairarapa's Ruamāhanga River area, between Tararua Forest Park and the Pacific Ocean, the land has long been devoted to agriculture.

Being in New Zealand, one of the interesting facts about our mono-varietals is that their quality and flavour profile completely matches what you would expect from these cultivars of European origin. - **Stephen Davies Howard, owner, Loopline Olives**

This scenic spot is also where the olive orchards of Loopline Olives thrive and where some of the world's best extra virgin olive oils are made.

Characterized by long and dry summers and protected from strong western winds by the gentle slopes of the 1,500-meter-tall peaks of the Tararua Range, Wairarapa has long been home to wine producers.

A few years ago, a British olive oil sommelier settled in Wairarapa and acquired Loopline Olives. Applying his knowledge and experience, Stephen Davies Howard brought its olive oil production to the world stage.

"My father and grandfather back in the United Kingdom were cabinet makers, and I grew up around wood, but I can say that my interest in olive oil, olive trees and olive growing sprung up during my staying in Puglia, during the war in Bosnia," Davies Howard told Olive Oil Times, hinting at the charm and beauty of Apulian olive growing landscapes.

"My background is as a fighter pilot with the Royal Air Force. I fell in love with New Zealand in more recent times whilst sailing around the world on my yacht," he added. "So I settled here and there I was, with a thousand olive trees, feeling the responsibility for their health, enjoying their beauty."

Olive production in New Zealand began expanding in the late 1980s when cuttings from Israel were imported to Blenheim, on the South Island.

According to the New Zealand Olives NZ association, olive orchard expansion spiked in the 1990s, with more than 200,000 new trees planted through the country.

Local farmers found that olive trees, primarily Italian and Spanish varieties, seemed to match the country's unique climate perfectly. Still, the first olive trees in the country arrived well before that.

In 1835, Charles Darwin, observing the Waimate area on the South Island, wrote about the farming settlements there, where "I may instance asparagus, kidney beans, cucumbers, rhubarb, apples, pears, figs, peaches, apricots, grapes, olives, gooseberries, currants, hops, gorse for fences and English oaks; also many kinds of flowers."

"Given the extension of our olive groves and the current state of olive oil culture in the country, we decided to do what we knew we could achieve: focus on quality, not on volumes," Davies Howard said.

Since 2019, Loopline Olive extra virgin olive oils have won awards at the NYIOOC World Olive Oil Competition.

Loopline Olives earned two Gold Awards for a pair of Picholine and Picual mono-varietals in both the 2020 edition and 2021 NYIOOC. The company has also won awards with its Frantoio and Leccino mono-varietals.

"Being in New Zealand, one of the interesting facts about our mono-varietals is that their quality and flavour profile completely matches what you would expect from these cultivars of European origin," Davies Howard said.

The NYIOOC panel of judges appreciated the Picholine for its tasting sensations of anise, lettuce, black pepper, tomato leaf and artichoke, according to the Official Guide to the World's Best Olive Oils.

However, the Picual extra virgin olive oil is milder.

"It presents fresh green leaves, freshly cut grass and a beautiful aroma on the nose, well transferred to the palate with rocket, tomato leaf and artichoke. It is mild, with well-balanced bitterness and pungency and a lingering smooth finish," the judges wrote.



“We produce about 3,000 to 3,500 liters a year,” Davies Howard said. “They all are sold on the internal market.”

Today, Olives NZ estimates that olive oil consumption is approximately four million liters per year, with local production covering less than 10 percent of the internal demand.

“Annual production ranges from 200,000 liters to 400,000 liters per annum depending on the year,” Olives NZ wrote. About 90 percent of the olive oil imports come from Spain.

For the country’s high-quality producers of extra virgin olive oils, the challenge is to promote olive oil culture and some basic knowledge about their products.

“New Zealand consumers today are not used to high-quality olive oil, as most of them buy what they find in food retailers’ shops, which are mostly imported olive oils which over time might have lost many of their qualities,” Davies Howard said.

“There are even producers that rebrand as New Zealand olive oil products which have been imported long before and could probably not even qualify as extra virgin,” he added. “Our efforts, of course, are aimed at letting people understand more about what an extra virgin olive oil is, what it means to transform the olives within six hours from harvest, and when they listen to that, I can see how interested they become.”

“Most Loopline Olives customers age range between their late 30s to late 40s, with mostly women at younger ages and men at older ages,” Davies Howard continued. “They are very focused on the health benefits of extra virgin olive oils.”

Given the beneficial impact of antioxidants found in extra virgin olive oil, the New Zealand grower noted how one of the most relevant selling points for Loopline Olives is their high polyphenol counts.

“Last year, we were in the 800 milligrams per kilogram,” Davies Howard said, underlining how seasonal changes would not make those numbers drop under 270 to 350 milligrams per kilogram, which he said was still above many other extra virgin olive oils on the market.

Today in New Zealand, a slowly improving understanding of extra virgin olive oil quality has not yet translated into olive grove expansion.

Since the 1990s, Olives NZ wrote, “a number of groves were removed (and unfortunately continue to be removed), either in a move to a higher-yielding crop (e.g., grapes) or because the varieties planted were not suitable.”

The association estimates that today 400,000 olive trees are growing in New Zealand. While there are more than 300 productive groves in the country, at least 100 groves are not currently managed.

“These are typically smaller groves where there is a lack of knowledge or perceived inadequate return on investment to warrant the grove being farmed productively,” Olives NZ wrote. “These dormant groves are a poor use of the land but potentially could contribute towards the solution where demand for New Zealand extra virgin olive oil exceeds supply.”

“Olive oil culture is crucial,” concluded Davies Howard. “We are working hard to promote it using every possible means such as social media, an environment where we can engage with people about the benefits and qualities of high-quality extra virgin olive oil.”

Cited Sources: □ *NZ Herald* □ *Olives NZ*
OLIVE OIL TIMES - Mar. 2, 2022, By Paolo DeAndreis



FARMERS IN NEW ZEALAND OPTIMISTIC AHEAD OF HARVEST

New techniques, better pruning and benevolent weather are fueling big expectations for the upcoming olive harvest.

Olive growers in New Zealand expect good results from the coming harvest season.

Local farmers confirmed that fruits are already dotting the trees in most groves, and this year's harvest appears to be larger than the previous two.

It would be the third year in a row production has increased. About 200,000 liters were produced in the 2019/20 crop year, with 270,000 liters produced in 2020/21.

However, the expected growth does not surprise local experts since the weather has been favorable in recent months.

Small local growers also continue to learn more about preventing disease and overcoming challenges, resulting in growing yields.

"The managing of most olive groves is improving year over year," Gayle Sheridan, Olives New Zealand's executive officer, told Olive Oil Times. "We just had a field day with growers and witnessed the efforts that many have put into maintaining their groves, optimal pruning and caring for the health of their trees."

During the biannual field days, the association visits olive groves in all the major growing areas of the country.

Some growers in New Zealand are focusing on adopting a harvest schedule that might enhance the polyphenol and antioxidant content of their extra virgin olive oils.

"It is an interesting phenomenon; analyses show how those contents are more present in local extra virgin olive oil as the consumers have also started to understand how beneficial they can be for their health," Sheridan said.

To enhance the health profile of their oils, some growers are actively studying farming techniques that might improve the quantities of the healthy contents.

"They do not want to limit their activity to an early harvest, which usually ensures a good quantity of polyphenols; they are also investigating what other measures can be adopted," Sheridan said. "It is an area for us that is quite new."

The types of olive trees planted in New Zealand, most of which come from Greece, Italy, Japan and Spain, can also help farmers increase the number of healthy compounds in their oils.

“Frantoio is the most planted variety in the country,” Sheridan said, but Picual, Picholine, Pendolino, Kalamata and Koroneiki trees are also common.

“We do have a New Zealand variety known as J5, but we think it might have been derived from Frantoio as it looks like Frantoio,” Sheridan said.

Identifying the olive varieties that could better adapt to New Zealand’s specific climate has required time and effort for local growers.

Stuart Tustin, a tree fruit physiologist and plant and food researcher, told Olive Oil Times that “in the 70s and the 80s, many [farmers] planted varieties coming from Middle Eastern countries such as Israel.”

“But those trees did not adapt well to these latitudes,” he added. “Now, with most European cultivars, growers are seeing way more interesting yields.”

For its 300 olive farms growing 350,000 trees over 2,130 hectares, the New Zealand harvest season starts in April in the north and progressively moves south, where it should end by early August.

“Growers now know that they have to harvest at the right time and that the full crop has to be harvested not to have consequences on the following season,” Sheridan said.

She added that olive growers in the country produce exclusively extra virgin olive oil. “Last year, we got 98 percent extra virgin olive oil,” Sheridan said.

Local extra virgin olive oil quality gets tested by specialized labs in Australia following International Olive Council’s protocols and standards for extra virgin olive oil.

The Olives New Zealand Association also releases the OliveMark trademark, which producers can adopt and show on their certified extra virgin olive oil containers. The goal of the trademark is to instill a sense of trust between the customers and producers.

Experts cite the consequences of a climate that brings significant rainfall in many areas as one of the main challenges for local olive farmers. When there are high humidity levels, several pathogens can take advantage of the climate and damage the olive trees.

The association suggests that growers actively combat the pathogens and spray their trees every 20 days.

“That is needed to keep on top of the diseases; otherwise, once you see them, it is too late,” Sheridan said. “Many proceed with relevant pruning operations, not just once a year as might happen elsewhere.”

“For instance, in these weeks, with the crop loads very visible, we suggest that many farmers prune the branches that do not have fruits, remove them and encourage new ones to grow,” she added.

According to Tustin, the parts of New Zealand that receive the lowest levels of rainfall are where olive growing is done most successfully.

“Those areas correspond to regions where other industries such as our wine industry are located,” he said.

Tustin emphasized how due to the maritime climate of the country, even the areas with less rainfall still report between 500 and 700 millimetres of rain each year.

While many farmers in the Mediterranean basin would be envious of the rain in New Zealand, the precipitation creates conditions for several diseases, including *Spilocaea oleaginea* (peacock spot) or *Cercospora*.

“Those are heavily challenging pathogens because so many of our growers are small enterprises planted by people that did not anticipate that they would have to become... horticulturists,” Tustin said.

He added how many growers in the past did not practice disease control, experimenting with consequences such as leaf loss and reduced productivity. Not all of them pruned the trees correctly or at all.

“In such cases, we would find groves with trees out of control, complicated by a high disease pressure,” Tustin said.

That is why Olives New Zealand, Tustin and other local experts recently started a series of projects to restore several unhealthy olive groves, progressively removing excess branches. This allowed the light to come back on the trees while progressively reducing pests and pathogens thanks to correct pruning.

Tustin said that many growers have understood why the lack of pruning is a problem.

“In the last year, as some of those groves were full with their beautiful canopy on top, they have seen how trees that once produced between 10 to 15 kilograms of olives are now closer to 20 to 25 kilograms,” he added.

One of the most interesting research areas for Tustin and local experts is the need for some olive growers to find organic alternatives to spraying their trees with pesticides.

“Initially, they did not have sprays they could use, so we worked on developing organic-compatible spray programs,” he said. “To that end, I also contacted researchers from the University of Bari in Italy. We developed a spray program compatible with organic olive farming similar to what we use for organic apple disease control.”

“It is still too early to say how successful it is,” Tustin added. “At the moment, though, we see that its early results resemble those of the conventional spray program, which is quite encouraging.”

For local olive oil producers, seasonal markets are the best way to reach the consumers, Sheridan said.

“Those consumers want to know more about the product, how it is grown and if sprays are being used,” she added. “They ask questions and are very discerning about the olive oil they buy.”

Like other producing countries, local consumers might notice price differences between the extra virgin olive oils sold by the local growers and the imported brands found on supermarket shelves.

“Yes, we have imports from different countries, such as Spain or Italy, and the price difference is a bit of a challenge for us in making the consumers understand more about our extra virgin olive oils, the certification and the quality,” Sheridan said.

There are no high-density or super-high-density olive groves active in the country, while irrigation is present in about one-quarter of the total groves.

The largest three growers boast 40,000 trees, 27,000 and 7,000, respectively, while 70 percent of olive groves contain less than 1,000 trees.

Commercial groves, which can partner with supermarkets, represent 13 percent of the total in New Zealand. However, Olives New Zealand expects this figure to rise as more smaller growers partner with larger ones.

Those market dynamics paired with the enhanced productivity of the groves could also help the country improve the percentage of local extra virgin olive oils consumed in the country.

New Zealanders consume approximately 4.5 million litres a year, 10 to 15 percent of which is locally produced.

Olive Oil Times - Mar. 31, 2022, by Paolo DeAndreis

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EXPERT COMMENTS ON NEW ZEALAND'S J5 OLIVE CULTIVAR

Margaret Edwards is New Zealand's only international olive oil judge.



Margaret judges regularly in the USA, Australia and Japan. She is a consultant to the olive industry, runs olive oil workshops and lectures nationally and internationally about New Zealand extra virgin olive oil.

Margaret and her husband John grow and process olives on Waiheke Island for their award-winning Matiatia Grove extra virgin olive oil.

Margaret was previously Head Judge for our own Oliveti Extra Virgin Olive Oil Awards and provides some interesting commentary on the J5 cultivar.

J5 Olive Trees

After growing both J5 and Frantoio olive trees for 30 years, it is apparent that these varieties are not related, although the trees may appear similar in form. It is difficult to trace the history of J5 accurately. In the 1950s the New Zealand government implemented a study into olive production and, as well as importing bare rooted olive trees for planting around the country, cuttings were taken from old, well-established olive trees. Cuttings taken from a tree in the Whangape area of Northland were given to Milton Johnson, a nurseryman, for propagation. The trees thrived and were named J5. The "mother" tree, which may have been

planted by Frank Lisle on his property sometime in the early 1900s, is still alive. J5 trees grow and produce well in the northern, warmer, more humid areas of New Zealand, possibly because the “mother” tree is growing on the edge of swampy ground. It is very unlikely that a Frantoio tree would tolerate and thrive with “wet feet.”

On examination, the pits from Frantoio and J5 are completely different, Frantoio pits being elliptical, slightly asymmetrical and rounded at the apex and base. The J5 pits are elongated, asymmetrical and pointed at the apex and base. The oil yield is also different, Frantoio from my olive grove routinely has a return of oil of between 22% and 26% whilst J5 is normally in the 16% to 19% range. However, the most significant factor is that the oil from these 2 varieties have completely different sensory profiles that bear no resemblance to each other. When one considers that the sensory profile of oil is set by the genetics of the variety, this surely becomes the factor that decides whether or not J5 and Frantoio are linked.

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UPDATE ON THE TOTAL POLYPHENOL SAGA

A summary of Peter Crelinsten’s address – Sunday 26 May.

In Northland the annual harvest is pretty much completed; the Olives pressed; the oil in fusti99s and, as below we now have the results of the assays for Total Polyphenols (TPP) from both the Wagga Wagga lab in Australia and the World Olive Centre for Health Laboratory in Athens, Greece. For comparison I have also noted the results from 2021.

Kerikeri	Puketi Olive Farm		Opito Bay	
	Waga Waga	Athens	Waga Waga	Athens
2021	149mg/kg	335mg/kg	529mg/kg	1133mg/kg
2022	244mg/kg	289mg/kg	151mg/kg	400mg/kg

From the above clearly the TPP levels are down significantly from the previous year when the result from Opito Bay as determined from the Athens lab were the highest known level in NZ. The above data might possibly raise a number of questions in your mind.

- Why are the results so markedly different from one year to the next?
- Why do I send the oil to two labs for analysis?

- What parameters effect the TPP levels and what can we do to increase them?
- Why do we want to produce oil with the highest possible TPP levels?

Why are the results so markedly different from one year to the next?

Good question - the answer surely is multi-factorial, but one explanation is that this year in Kerikeri, we received almost 50% more rain in March than last year (200ml vs 130ml in 2021). Polyphenols are water soluble and so significant rain prior to harvest, (within two weeks) will adversely affect the TPP levels. In addition, it is well known that 'water stress' will induce increased TPP levels in the trees, and no doubt this year there was no pre harvest water stress. Two-phase centrifuge systems will produce higher TPP levels consequent to less water usage but both in 2021 and 2022, the oil was extracted with three-phase systems.

As time increases from harvest to press the TPP levels will go down consequent to the onset of oxidation but in 2021 it was twenty-one hours from harvest to press and in 2022 it was seven hours and so that should have produced higher, not lower, TPP results.

It is thought that as the crop load per tree increases the TPP level goes down and in 2021 we harvested only 400 kg at Opito Bay and this year 2,600 kg, so that may explain part of the marked decrease this year.

Overall, aside from the rainfall issue, a bit of an enigma....

What are the parameters affecting TPP level in the oil?

- Polyphenols are water soluble and so as little rain as possible (in the hands of the Olive Gods) in the two weeks prior to harvest along with resultant induced water stress.
- Very early harvest in the maturation cycle is critical in that as the olives mature, on the tree, TPP levels go down, but of course oil concentration goes up. This was clearly shown in the graph shown at the recent Oliveti field day. The olives harvested in Nov. (in Greece) had TPP levels 7x's higher than those harvested three months later!
- Time from harvest to press house AND into the mill. The shorter the time, the better—we should strive for not more than a maximum of EIGHT hours from harvest to press. Beyond that oxidation has commenced. As noted above, two-phase extraction ought to produce higher TPP levels than three-phase consequent to less water exposure. However, it is difficult to find a two-phase system within reasonable proximity to our groves for most, if not all of us. As well, it is critical that the temperature in the malaxer be between 24 C and 28 C - Below and above those temperatures problems with enzymatic reactions will produce lower TPP levels. In addition, malaxation time should be as SHORT as possible as after 30 minutes in the malaxer TPP concentrations start going down.
- As noted above, it is believed that as tree crop load increases, TPP levels are reduced, but of course everyone wants as high a kg/tree as possible. Once again in the hands of the Olive Gods to a significant extent.



- Post-harvest, storage is critical as TPP levels will go down with exposure to heat, oxygen, light, and increased humidity. An inert gas such as Argon put into your storage fustis is of definite help in this regard.

Why do I send the oil to both Wagga Wagga and Athens?

In short, the lab assay methodology employed in Wagga Wagga (near Infra-red) is in my opinion – very, very inaccurate. (*Please contact me directly if you are interested in WHY*). Whilst the lab in Athens uses what is called quantitative Nuclear Magnetic Resonance – qNMR - which is vastly more accurate and considered by experts to be the GOLD standard to assay Polyphenols. You can see the different results above. Near infra-red assay's UNDERESTIMATE, the TPP levels. Most unfortunately, simply tasting the oil for how peppery it is, also is not a viable methodology to quantitatively assay TPP levels in the oil.

Why do we want to produce oil with the highest TPP feasible?

Most of the health benefits of Olive oil are consequent to the Polyphenols in the oil. There are over 30-PP's in Olive oil, with 5-6 major PP's and many minor ones. Each of the major Polyphenols such as Oleocanthal, Oleuropein, Oleacin, Ligstroside, etc., are responsible for the various components of the health benefits which include protection against oxidative stress in the body, cardio-protective, neuro protective, anti-inflammatory action, anti-cancer properties (especially some specific types of Breast cancer and Chronic Lymphocytic Leukaemia), increased sensitivity to Insulin (of benefit to Diabetic's), etc. Who would not want to achieve high TPP levels in view of the health benefits? Not to mention the value of your oil goes up as the TPP level goes up.

The TPP level in your oil must be > than 250 mg/kg to be accepted as having 'health benefits' and some are demanding levels of 500 mg/kg because when the oil is stored at room temperature, in general 12-months later the TPP will be reduced by up to 45%. The ideal, but perhaps not practical, storage temp. Is 4 C.

If anyone is interested in exploring more in-depth details of any of the above, I am more than willing to discuss such with you. You can obtain my contact details through Oliveti or email direct.

Peter Crelinsten MD

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