

“Meeting the increasing demand for New Zealand Extra Virgin Olive Oil”

The Focus Grove Project II

Olives
New Zealand

Presentation Overview

- Rural Delivery Programme
- History – issues with New Zealand production
- Project Scope
- Focus Groves Visits
 - October/November 2019, March 2020, October 2020
- 2020 Harvest and Harvest Data Comparisons
- Fact Sheets
- Conclusions

History – issues with New Zealand production

- Average annual production = <10kg per tree
- Biennial bearing
- Disease in trees
- Low production = high costs
- NZ market share for NZ EVOO = <10%
- International research not always applicable to New Zealand

New Zealand olive industry market share constrained because of
low levels of productivity

Project Scope

- This project aims to increase the production of established olive groves to meet the increasing demand for New Zealand Extra Virgin Olive Oil (EVOO) and will provide a template for any new groves. The target is an additional 5kg per tree.
- A desired second outcome is to develop alternate/more organic approaches to production to meet aspirations of a segment of the industry.

Preliminary Recommendations

- Canopy Management
 - Reduce height and open up canopy
 - Set up regeneration of new healthy (sprayed!) young growth
- Disease Management
 - Mancozeb/Manzate (plus Protek at flowering)
Organic option: Kumulus Sulphur + Copper Hydroxide
 - Proactive spraying programme: keeping a protective fungicide cover
 - Orchard air blast sprayer required for effective tree coverage
- Appropriate Nutrition to support improved productivity
 - Soil tests
 - Leaf tests

FOCUS GROVE VISITS

Several groves who considered becoming organic and received a preliminary visit with advice in 2019, subsequently decided against the organic approach.

The issue being the requirement to implement a spray programme for disease control – cost (equipment) and time.

AQUIFERRA, HAWKE'S BAY



Aquiferra Grove Visit – October 2019

- Canopy Management
 - Regrowth pruning rather than renovation pruning
- Disease Management
 - Trees in excellent health and little visible sign of disease
- Nutrition – soil test results
 - Phosphorous and Potassium are low. pH needs monitoring.
 - Recommendation: Sulphate of Potassium and Triple Super

Aquiferra Grove Visit – March 2020

- Canopy Management
 - Excellent crop load, irrigation maintained
- Disease Management
 - Fine weather has resulted in stretching out spray intervals
 - Scale infestation identified – respond in spring 2020
- Nutrition – leaf test results
 - Nitrogen and Boron slightly low
 - Recommendation: observe at present

Aquiferra Grove Visit – October 2020

- 2020 harvest – grove avg 21kg per tree and 19% yield
- New Zealand's highest producing grove 2020

Grove observations October 2020

- Flowers just becoming visible – a good return bloom
- Diseases absent; remnants of scale infestation controlled
- Fruit hard to harvest in 2020, lowered tree yields ~30%
- Fruit oil yield 50% ↑ in 2020; 20% higher total L's in 2020
- Irrigated all season but severe drought conditions.

LEAFYRIDGE, WAIRARAPA



Leafyridge Grove Visit – November 2019

- Canopy Management
 - Aggressive pruning regime to get trees reduced in size and improve shape
- Disease Management
 - Well under control and minimal signs of disease
- Nutrition – soil test results
 - Potassium and Boron low
 - Recommendation: Potash Super and Boron (foliar spray)

Leafyridge Grove Review – March 2020

-report from Craig as field day was cancelled because of Covid

- Canopy Management
 - Back field heavily pruned to remove main central limb to open up canopy plus sides of the trees to enhance spray penetration
 - Irrigation underway
- Disease Management
 - Fine weather has resulted in stretching out spray intervals
 - Protek applied three times over flowering
- Nutrition – leaf test results
 - Few deficiencies to be addressed in Spring

Leafyridge Grove Visit – October 2020

- 2020 harvest – grove avg. 18kg per tree and 15% yield

Grove observations October 2020

- Machine + hand harvested trees yielded up to 40 kg in some varieties/blocks
- Flowers emerging and indications are for an adequate return crop
- Grove condition is exemplary
- Soil management/nutrition showing positive benefits

BELLA OLEA, WAIRARAPA



Bella Olea Grove Visit – October 2019

Organic grove – 2nd year of registration process

- Canopy Management
 - Major renovation programme underway to reduce height and improve regrowth
- Disease Management
 - Current spray programme not working – what could be improved?
- Nutrition – soil test results
 - Magnesium and Boron low
 - Recommendation: Fertiliser mix (Limestone, MagCarb, Magnesium Sulphate, Muriate of Potash and some Zinc Sulphate, Copper Sulphate & Cobalt Sulphate)
 - Nutrition advice seems complex – suggests it could be higher cost

Bella Olea Grove Review – March 2020

- COVID-19

Bella Olea Grove Visit – October 2020

- 2020 Harvest – no harvest because of heavy pruning

Grove observations October 2020

- Restructuring pruning going well – regenerated growth is generally good. Good progress.
- A big flowering evident following an off-year in 2019
- New spray regime implemented – 1 application monthly.
Bacillus subtilis + other biologicals + foliar fertiliser
- Key factor for next 12 months is how well the disease control programme works – we are prepared for adaptation

KAKARIKI, NELSON



Kakariki Grove Visit – November 2019

Top producing grove in New Zealand for 2019

- Canopy Management
 - Taking out one large limb annually to reduce height
- Disease Management
 - Trees in excellent health and low visible signs of disease
- Nutrition – soil test results
 - Potassium and Magnesium low
 - Recommendation: add Magnesium Sulphate to Olive Tree Mix

Kakariki Grove Visit – March 2020

- Canopy Management
 - Major restructuring mostly completed, now on to maintenance
- Disease Management
 - Fine weather has resulted in stretching out spray intervals
 - Protek applied three times at bloom
- Nutrition- leaf test results
 - Nitrogen, Potassium and iron a little low
 - Recommendation: customised fertiliser mix next spring and foliar spray for iron

Kakariki Grove Visit – October 2020

- 2020 harvest – grove avg 13kg per tree and 17% yield, fruit difficult to machine harvest in 2020

Grove observations October 2020

- Early season with flower buds just emerging – looks a good return flowering (tbc).
- Excellent disease control (dry winter with more sprays than usually possible)
- Tree restructuring slowed slightly to maintain grove yields – some large limbs retained 1 more year
- Major fertilizer investment in 2020 based on soil test; split application September and January

NEUDORF, NELSON



Neudorf Grove Visit – October 2019

- Canopy Management
 - Customised pruning to suit/enable hand harvesting
- Disease Management
 - Considered organic approach but decided on lower intensity Manzate approach to improve production (water limitations)
- Nutrition – soil test results
 - Phosphorous, Potassium, pH and Boron low
 - Recommendation: Potash Super, Lime, Boron (foliar spray preference)

Neudorf Grove Visit – March 2020

- Canopy Management
 - Major pruning completed, work done on skirts for ease of harvest
- Disease Management
 - Access to water had been a problem for spraying now addressed with drawing off pond
 - Two sprays since October
- Nutrition – leaf test results
 - Results good and no apparent deficiencies

Neudorf Gove Visit – October 2020

- 2020 harvest – grove avg 10kg per tree and 17% yield

Grove observations October 2020

- Big winter prune finished – trees wells set up for hand harvesting. Some 'bushy' layering advised to reduce
- Good disease control – dark green leaves show the foliar fertilizer regime is working
- Grove management improvements have not caused any short-term reductions in productivity

TERRACE EDGE, CANTERBURY



Terrace Edge Grove Visit – November 2019

- Canopy Management
 - Remedial pruning, good regrowth, droopy branches need removing for machine harvesting
- Disease Management
 - Peacock Spot and Cercospora still apparent, some Anthracnose
- Nutrition – soil test results
 - Phosphorous low
 - Recommendation: Potash Super

Terrace Edge Grove Visit – March 2020

- Canopy Management
 - Major pruning still in progress, irrigation underway
- Disease Management
 - Manzate sprays on track but missed the timing for Protek
- Nutrition – leaf test results
 - Nitrogen, Phosphate, Magnesium and Boron low
 - Recommendation: Boron (foliar spray) over next bloom

Terrace Edge Grove Visit – October 2020

- 2020 harvest – grove avg 11kg per tree and 14% yield
- Around 50% of trees harvested (figure above adjusted accordingly)

Grove observations October 2020

- Grove well pruned – trees close to ideal but regrowth needs stimulating still
- Lower disease but heavy scale infestation still – spring intervention using Applaud recommended
- A bit early to tell but flowering looks adequate (tbc)

Terrace Edge Grove Visit – October 2020

Grove observations October 2020 cont.

- Organic spray programme discussed – clarifications sought and we should review fact sheet for consistency and clarity
- Serenade Optimum[®] an organic anthracnose control measure – use as per Protek recommendations, 3 sprays over bloom
- Delete Copper Hydroxide from the spray mix when using Serenade
- Grove floor management – lots of ideas – for organics perhaps mow with swing arm mower set high. Always mulch in prunings
- In general we should leave grass longer to produce a mulch layer for water conservation

OLIVES ON THE HILL, NORTHLAND



Olives on the Hill Grove Visit – October 2019

- Canopy Management
 - Heavy prune offset by heavy flowering
- Disease Management
 - Minimal signs of Peacock Spot and Anthracnose
- Nutrition – soil test results
 - Potassium and Boron low
 - Recommendation: Potassium Sulphate, Lime and Boron (foliar spray)

Olives on the Hill Grove Visit – March 2020

- Canopy Management
 - Heavy pruning completed
- Disease Management
 - Fine weather has resulted in stretching out spray intervals
 - Protek applied three times
- Nutrition
 - No major deficiencies but Magnesium and Boron need monitoring
 - Recommendation: Boron foliar sprays at flowering

Olives on the Hill Grove Visit – October 2020

- 2020 Harvest – grove avg 16kg per tree and 16% yield

Productivity trends:

- Increasing yield/tree, Increasing % oil yield
- 3-10 fold increase in polyphenols (2020)
- 2020 crop increase 66%↑, from 9t to 15 t
- 2020 oil yield increased from 1400L to 2600L (86%↑)
- Flowering light on Frantoio, heavy on Leccino (tbc)
- Grove condition is close to our objectives

2020 Harvest – industry overview

- The 2020 harvest year was very disappointing for the majority of groves. Harvest was 25% down on 2019, which was also a low year, and 50% down on 2018.
- A number of factors contributed to the poor performance – a promising flowering did not translate into a good fruit set, followed by drought conditions in many regions resulting in small fruit and/or fruit drop, and then slow ripening.
- These factors were then compounded by harvesting/harvester issues for a number of groves.
- 20% of groves had no harvest and 69% of groves that harvested, harvested less than 10kg per tree.
- **However the Focus Groves (and similar) continued to out-perform other groves**

Harvest Data Comparisons – Frantoio kg per tree

Compared to regional average (inc. Focus Grove)

	2018	2019	2020
Aquiferra	28	18	21
Hawke's Bay	22	4	4

Harvest Data Comparisons – Frantoio kg per tree

Compared to regional average (inc. Focus Groves)

	2018	2019	2020
Leafyridge	25	8	25
Bella Olea	1.3	7	0
Wairarapa	6	3	3

Harvest Data Comparisons – Frantoio kg per tree

Compared to regional average (inc. Focus Groves)

	2018	2019	2020
Kakariki	15	18.6	13
Neudorf		8.5	10.6
Nelson	4	18.6	5.8

Harvest Data Comparisons – Frantoio kg per tree

Compared to regional average (inc. Focus Grove)

	2018	2019	2020
Terrace Edge	1	5.8	11
Canterbury	1	1.8	1.7

Harvest Data Comparisons – Frantoio kg per tree

Compared to regional average (inc. Focus Grove)

	2018	2019	2020
Olives on the Hill	28.6	8.7	16
Northland	3.7	2	4.6

Fact Sheets

- October 2019 – Organic Approach (review Oct 2020 to update)
- To come
 - Nutrition
 - Pruning (update)
 - Disease Management (update)

Conclusions

- All of the original Focus Groves that have been following the recommended programme for proactive disease management, canopy management and nutritional advice have reached an exemplary stage and are exemplars for the wider olive growing industry in New Zealand.
- Other groves following these recommendations have similar results in their harvest tonnage as well as their observations on overall grove health.
- Neudorf is also well on their way to this same condition.
- It therefore poses the question to why many groves choose to do nothing, accept poor production and high costs. The ability to address these issues is in their hands and there is the unfilled demand for NZ EVOO in many regions.