

SFF Project 404831 - Increasing the Market Share for New Zealand Olive Oil

Milestones M14 and M15 Fifth Focus Grove and Field Days Report

October 2018

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Introduction

The purpose of the Sustainable Farming Fund project is:

To increase the market share for New Zealand produced olive oil by identifying basic grove management practices to enable the industry to consistently lift productivity of fruit per hectare and thus also reduce costs. This will allow the New Zealand industry to compete effectively with imported olive oils to increase market share.

The objectives to achieve the purpose are aimed at practice changes that enhance tree and grove productivity.

The methods use expert tree crops horticultural advice focusing in two key aspects of grove management.

1. Improving tree health by disease control using affordable protectant spray programmes to eliminate foliage diseases that defoliate olive trees, a primary cause of low productivity in NZ groves.
2. Introducing practical, affordable tree pruning regimes that improve light distribution for stimulating flowering and fruit growth, aiding effective spray coverage and inducing adequate annual shoot growth to provide the required bud sites for new flower production – on an annual basis.

This report outlines the progress made by the Focus Groves and is based on the review and recommendations from the fifth round of Focus Grove visits and Field Days held in October 2018, carried out under the Project Extension Approval. This fifth round of visits was carried out by the two consultants engaged as part of the projects; one from Plant and Food Research and one from Forty Groves Ltd. Also attending were Esteban Santipolio from Argentina (NZ EVOO Awards Head Judge) and Dr Vera Sergeeva from Australia (plant and disease specialist. Mr. Santipolio attended all visits and Dr Sergeeva attended all except Wairarapa.

This report is based on the observations from the Focus Grove visits by the project consultants and Focus Grove owners coupled with discussion at the Field Days with attendees.

Focus Groves Status

Kakariki, Nelson

Approximately 16 people attended the Field Day events at Nelson on Thursday 11 October 2018.

A full day of events started at 10.30 at Weka Olives, Ngatimoti with 16 people present. The visit was added to the day's programme so as to look at tree structure and health on a no spray grove. Grove co-owner Peter Rothenberg outlined the grove history and gave an insight into the management practices employed to date. It was noted that the steepness of much of the grove had been instrumental in determining many of the management practices of the 1500 tree grove. The grove walk started in steady rain at 11 am.

Stuart Tustin summarised the tree health and canopy shape as follows.

There were no two or three year old leaves.

All the leaf present was on this season's fruiting wood.

The extension growth for this season was excellent, but needed more pruning to allow light and air ingress.

The tree size was at a point where restructuring pruning was necessary.

He expressed concern that early signs of disease on the new growth would impact on the trees ability to support fruit later this season.

General comments were that the trees were in as good a condition as could be expected without a spray programme and that the current fertilizer programme was a factor in this. Encouraging more regenerative growth and allowing more air and light in through pruning should greatly improve tree health in the absence of a spraying programme.

At 12.30 the group retired to the Moutere Pub for a luncheon and oil tasting session with the Head Judge of the 2018 NZ EVOO Awards, Esteban Santipolio. The 4 varieties that made up a Grove Blend were tasted, analysed and commented on by Esteban and every one present. Esteban's analysis and comments were extremely informative and will make future blending less of a mystery. The group also tasted two oils from Esteban's grove in Argentina.

At 3 pm the group arrived at Kakariki Olives for the final visit in this 2018 round of SFF visits. The control trees were analysed in depth with emphasis on the improved leaf health and pruning responses. Some time was spent looking at what pruning cuts needed to be made now on various scenarios so as to maintain crop volumes. The pruning done by grove owners, Ray and Brenda Gregory, to date to the 10 meter plus trees was discussed and met with Andrew and Stewart's approval. This has allowed considerably more light into what was previously a very shaded part of the grove. It was estimated that to maintain crop volume requirements it would still be 3 years before the renewal programme was complete. New growth from pruning cuts made at the first focus grove field days 3 years ago was now at a stage on some trees that the final pruning cuts of old wood could be made.

It was noted that there were still signs of disease on the trees. This is going to be an ongoing problem in Nelson because of the period of time it takes to get access to the grove for spraying after harvesting. That is, anything up to 10 weeks. It was pleasing to note though

that there were still plenty of 2 and 3 year old leaves. Stewart advised that the new spraying regime to help control anthracnose at flowering was due to be advised next week.

The field day finished at 5 pm. It should be noted that this was the first time that our guest judge had ever had to use an umbrella on an olive grove.

Photos to come ...

Bel-Hamed and Terrace Edge, Canterbury

Despite a very cold day and mid-week date, 17 people turned out for the Field Day. As well as having Andrew Taylor and Stuart Tustin to provide the continuing monitoring and advice, we had input from Esteban Santipolio the head judge for this year's olive oil awards and Vera Sergeeva an expert in disease identification from Sydney.

The visit commenced at the grove of Malcolm and Sally McKenzie who, although not a focus grove, are pioneers of the industry and have been following the Focus Grove principles for crop management for the last four years. Their trees look extremely healthy with very good four-year leaf growth. Biennial bearing had also been eliminated. This provided a great example of the benefits of following the focus grove programme.

The principle visit was then conducted at Terrace Edge which is the Canterbury Focus Grove situated 5 km away. This was also an opportunity to taste some local olive oils under the guidance of Esteban who explained the way judging is done and what he looked for in an oil. He shared a sample of his own mild oil for the group to taste. He has identified a specific market that prefers this style of oil.

The group then proceeded to review progress at Terrace Edge since the last visit. As stated last year there had been various impediments to following the Focus Grove management and it had been re-instigated only in the last few months. The contrast between the two groves was obvious and salutatory. There was more infection causing a lack of four-year leaf growth and the consequence had been a poor yield from the trees this year. This was the best demonstration of what could happen in a grove if the pruning and spraying regime were not followed.

The major cuts from last year showed good regrowth and another two trees were used to demonstrate the pruning that would be beneficial for the following year.

OMC a local outdoors equipment company also demonstrated some mowing machines and pruning equipment and the speed of the mowing and mulching was dramatic and impressive.

Following lunch and a general catch up session, some further oils were tasted in discussion with Esteban. These field days are hugely valued here in Canterbury and provide a great opening for new property owners to find good advice. The impact in improving local grove management has been very significant.





Canterbury Field Day



Opening up the tree



Looking at impact of cuts

Leafyridge, Wairarapa

Craig and Ruth Leaf-Wright welcomed around 60 people to the Field Day held at Leafyridge on Friday 12th October. A fabulous turnout given that it was raining and cold. This Field Day preceded the Olives NZ Conference and people had arrived early from as far south as Central Otago to as far north as Manogonui to attend the Field Day.

Stuart explained that the focus was on opening up trees with major cuts. However also keeping trees in production to ensure commercial viability of the grove. Trees that were similarly pruned 2 years ago are now carrying much heavier crop than previously.

Stuart also noted that suppressed branches will sort themselves out once trees are opened up and cuts will encourage vigor in the new growth. In hindsight the pruning should have been more aggressive with better results as previously evidenced in Hawke's Bay.

As well as major cuts there was also a focus on tidying up poorly productive branches and also those where fruit will fall outside the harvest umbrella.

Stuart noted the ongoing battle with cercospora was pretty successful because of the ability to maintain the spray program. He pointed out the three year old leaf and good retention. He said all Focus Groves are operating above where anticipated in relation to the harvest tonnage and evidenced in overall grove health.

There was then a visit to River Grove who were early adopters of the Focus Grove recommendations. This was an exemplary grove and shows what Leafyridge will look like in a couple of years. New growth and flowering throughout all trees on this grove. Attendees were also interested in the olive tree nursery and the bird control system.

The day concluded with a BBQ hosted by River Grove.



Great attendance at Leafyridge from Northland to Central Otago



Wet day at Leafyridge



Removing pendant growth



Canopy opened up



Looking at impact of cuts



Stuart showing which branch needs removing



The results of a hard prune

Ngatarawa (Aquiferra), Hawke's Bay

Bob Marshall and Shona Thompson welcomed 23 people to the Field Day held on Tuesday 9th October. Also in attendance were representatives from Horticulture Group.

Stuart noted that this is the exemplary grove in the Focus Grove Project and asked the grove owners to explain their operations. Bob Marshall said that there had been lighter pruning in February and guided by crop load. This had resulted in very good crop.

Bob said they had been undertaking a pruning experiment with aggressive pruning 2 years ago but maintaining three rows according to Focus Grove recommendations. The rationale with the heavy prune was to reduce height and to improve harvest ability. There was a need to manage the canopy to stimulate growth. This year the former trees had a heavier crop of 2-5kg per tree so the experiment has been successful. The individual fruit were larger and weigh more.

Stuart noted how successful the experiment had been and that this was recommended to others as they only would only lose one year of crop at worse. Therefore groves can accelerate the rejuvenation process.

Stuart pointed out the good return flower apparent in all trees, also three year old leaf and good extension growth.

Bob noted, however, some disruption to spray timing has resulted in cercospora being seen again. This was a timely reminder that the spray programme needs to be followed 12 months of the year, there is no downtime. The investment is required to get the results and, with 20 sprays at \$30 each, was a good investment given the increase in crop.

Esteban commented that in Argentina the olive growing was in very dry areas but with irrigation. Therefore they don't have the same issues with disease. However sufficient water during flowering was critical.



Good turnout at Ngatarawa discussing pruning



Identifying a main branch for removal



Taking out the branch



Fr Vera Sergeeva from Australia examining for disease



Esteban Santipolio from Argentina with Horticulture representative

Olives on the Hill, Northland

There were 15 growers in attendance as well as the project consultants. They were welcomed to Olives on the Hill by owners Chris and Linda Smith.

Chris commented that they had their best ever crop with 2000kg, previous best being 1200kg. He had only managed 3 sprays since May harvest and end of Sept due Northland very wet winter. The Frantoio was harvested on May 7th, a little earlier than desirable because of the evidence of some anthracnose in the trees at the top of the grove.

Stuart and Andrew were very impressed with the new growth and overall grove condition. Trees showing 4 and 3 year leaves giving the tree a good factory for producing a good crop as well and new growth.

Stuart said that the aim for the trees is a "tall upright vase" and that the grove is still a couple of years away from purely maintenance and on-going regenerative pruning. The grove is still in "fixing" mode, bringing the trees down to a desirable height, to allow spray to reach all foliage, and the tree shaker (or manual harvester) to access all fruit.

A large cut was made allowing more light for regrowth but still leaving one large branch allowing for a 2019 crop. Next year this branch will be removed. Next season some on the new regrowth will start producing fruit.

The incidence of anthracnose was less apparent as you went further down the hill. Some speculation that the anthracnose spores are being wind-borne from the neglected grove across the road. Stuart suggested the possibility of an alternative spray to use at flowering time. Stuart said that the cercospora and peacock spot were well under control now, although anthracnose was still evident at harvest, although not so widespread.

Esteban said that there should be a 10 year ongoing plan of renewal. Every year at pruning time, decisions are made with "divide by 10" in mind. Each year's pruning is an integral part of the 10 year renewal plan, preferably to have five limbs, and every other year one large limb gets cut. Esteban suggested that the Leccino trees that had been coppiced three years earlier should have been pruned more severely last year. The idea is to have an "old young tree". An old root stock and main trunk, but with young branches and foliage for the fruit.

The Leccino was harvested on April 9th, probably too early and there was a very low yield, only 4% lots of water in the fruit. It was noted that the Leccino that had been coppiced three years ago now have strong new growth.

Julie and Ann from Koru Olives had brought along a piece of bark from a Leccino tree from their grove. They said that the dark (almost black) colour of the bark was only seen on Leccino trees, and not other varieties. Could this have anything to do with Leccino's susceptibility to fungal diseases?

The afternoon concluded with afternoon tea and oil tasting. Attendees commented that the smaller gathering enabled one on one discussions with Esteban Santipolio, who was very impressed with our local oils,



The group at Olives on the Hill



Looking at new growth



Taking out pendulant growth

Comments from Dr Vera Sergeeva on her visit to the Focus Groves

What diseases and disorders did you observed in New Zealand olive groves?

I visited olive groves in four regions during Field Days in October 2018 organised by Olives NZ as part of the ongoing Sustainable Farming Fund project in Northland, Hawke's Bay, Canterbury, and Nelson. Olive growers showed me images with various disease symptoms. Anthracnose and Cercosporiose are important fungal diseases in a number of olive growing regions in New Zealand. However, growers can find it difficult to correctly identify Anthracnose and Cercosporiose diseases as well as frost, chilling and water stress disorders as symptoms can look similar.

Climatic conditions during the growing season affect the sensitivity of olives to injury. Detection and diagnosis of chilling injury is often difficult, but symptoms may occur when the produce is placed at higher temperatures. Symptoms, which appear at higher temperatures may do so almost immediately, or may take several days to develop. Frost also is one of the most important weather-related hazards for the New Zealand olive industry and it has caused significant economic losses and its impact on oil quality is significant.

Are olive varieties growing in the same manner as in other countries?

An oil variety of Italian, Spanish, Greek or Israeli origin will not necessarily behave in the same manner in respect to quality or quantity if grown somewhere else in the world. Localities have influenced many of the old varieties when brought into the new world. So important to select olive varieties suited to local growing conditions.

Why is disease identification important?

The correct identification is important to prevent unwanted chemical applications.

What do you recommend to maintain healthy crops?

- Planting cultivars that are not susceptible to pathogens and frost or chilling injuries. Selecting varieties suited to local growing conditions. Re-planting or grafting cultivars resistant to anthracnose.
- Pruning helps with natural control of anthracnose and cercosporiose, reduces pressure on fungicides, diseased twigs should be pruned, removed from grove & destroyed
- Creating healthy soil. High pesticide levels can become toxic to roots, may also interfere with the uptake of plant nutrients, and disrupt the natural ecological balance in the soil by killing beneficial soil microbes. Plant's pest and disease resistance is strongly related to the fertility of soil in which they grow.
- Plant quarantine (plant sanitation, biosecurity)

What comments do you have on the Focus Grove recommended spraying programme?

In New Zealand Manzate was chosen for the Project because it is well proven on other crops in New Zealand. It is also cost-effective in the olive grove scenario. Mancozeb is a dithiocarbamate non-systemic agricultural fungicide with multi-site, protective action on contact. It is a combination of two other dithiocarbamates: maneb and zineb. Manzate contain Mancozeb and in the market Manzate fungicide as: Manzate 75DF, Manzate 200DF, Manzate Evolution, Manzate 75WG, Manzate DF, Manzate 200WG, Innova Mancozeb 750 and Manzate GRDA. I would remind growers to always read fungicide MSDS or label before opening and using.

Updated Harvest Data Report

The updated Harvest Data Report including the 2018 harvest figures is below. It is apparent that all Focus Groves, with the exception of Canterbury, have made excellent progress in increasing crop loads and lessening biennial harvest problems. The 2018 figure from Bel-Hamed has been included to show what is achievable in the Amberley region.

However, whilst the harvest data is tracking in the right direction, the one year project extension is necessary to prove this.

Harvest Data Comparisons – Frantoio kg per tree Compared to regional data/control group (Incl. Focus Groves)

Participant	2014	2015	2016	2017	2018
Ngatarawa	22.8	21.7	21.1	10.6	28
Hawke's Bay	3.6	10.2	10.3	10.6	22
Leafyridge	15.2	Frosted	19.1	5.7	25.4
Wairarapa	6.5	5	10.2	6.9	15.4
Kakariki	11	14	12	14.5	15
Nelson	12.1	8.9	11	10.9	8.5
Terrace Edge	1.9	1.9	16.1	2.7	1
Canterbury	6	1.9	10.3	1.3	6.3
Bel-Hamed					13.6
Olives on the Hill	8.5	-	21	7.51	28.6
Northland	7.3	3	10.4	6.8	12.5

Summary

All of the Focus Groves and several others visited as part of the Field Days, that have been following the recommended programme for proactive disease management and canopy management, are showing dramatic improvements. Indeed at least two of the focus groves have reached an exemplary stage and are exemplars for the wider olive growing industry in New Zealand. The others groves are well on their way to this same condition.

One key issue was apparent. At earlier Field Days all Focus Groves showed a loss of flowering due to Anthracnose infection, with northern groves reporting a substantial loss of fruit due to this infection.

This is a real threat for all olive groves and Stuart Tustin of Plant and Food Research undertook to investigate and make appropriate recommendations. This has resulted in the release of an Anthracnose Bulletin with appropriate recommendations.

<https://www.olivesnz.org.nz/wp-content/uploads/2018/10/Anthracnose-Bulletin-October-2018.pdf>