

THE NEW ZEALAND LAVENDER GROWERS ASSOCIATION

# Lavender Link

Quarterly newsletter for Association members

Issue 60

Autumn 2015

## Summer Delight



The winning photo from Susi and Vaughan's Lavender Creek Harvest Festival, January 2015.

NEW ZEALAND  
LAVENDER  
GROWERS  
ASSOCIATION

# Chairman's Chatter



TO RESEARCH, DEVELOP  
AND PROMOTE LAVENDER  
ESSENTIAL OIL AND  
ASSOCIATED PRODUCTS  
OF THE HIGHEST QUALITY

I am writing this just as the cyclone is giving the Barrier a bit of a brushing. It is always interesting when we get heavy rain as we have to cross a ford to get out down our road and after a lot of rain it is usually not passable. Can be a problem if you have a plane to catch.

This summer from the reports I have read most of us have seen extended dry periods and an increase in yields. Mike Alspach, our northern regional coordinator, received a phone call from a radio ZB presenter asking about how the lavender season went. Topics covered were, growing in general, diseases, weeding, and encouraging listeners to grow lavender. This was aired on the radio and I understand some of us may have heard it. Apparently the interview went very well. This may explain why I have had a considerable increase in general enquires from the website about growing lavender.

In the last *Link* I indicated that we would be starting a website review with the view of adding content and resources for our members. This is still ongoing and I would welcome ideas on what you would like to see and find useful. Some ideas are to have additional tabs on the menu; for example, 'Real Estate' and 'Equipment for Sale'. Another is to expand on the where to find members farms, with more photos of your farms and products. Each picture would have a link back to your own website. This could also be linked to the 'Gallery' tab. The idea is to make info about your farms and products, more visible on the website. Please contact me with ideas you would like to see.

Blake Foster has been researching into producing a material data safety form (MSDS) for our members to use when shipping bulk oil. The form is presently for *Angustifolia* and can be requested from the secretary, Charlotte. You will need to agree to the terms and conditions before it is sent to you. Once the technicalities have been sorted it is intended to have this as a resource that can be downloaded from the website.

I would like to see the re-establishment of the Oil Bank and for it to be on the website in the public space. If you are interested in selling your oil and would like it advertised on the website please contact the secretary. Depending on the interest for this we can then look at the feasibility to see how best to implement it.

If there is sufficient member interest, we are proposing to run a mini conference in conjunction with this year's AGM and the 20<sup>th</sup> anniversary of the Association. This would be held in Lincoln, approximately end of August or October. The proposed format will be a group discussion of issues that affect us as lavender growers and with particular focus on distillation techniques and oil quality. A farm visit is also planned. This is a chance for experienced lavender growers and distillers to share information to the wider membership and particularly to new members. The sharing of ideas in this format can be very beneficial to us all.

Please let me know if you are interesting in participating.

As always if you have suggestions you would like your executive to look into or just want a chat, I welcome your call.

Peter.

[peter@greatbarrierlavender.co.nz](mailto:peter@greatbarrierlavender.co.nz)

Ph: 09 4442962



Hello,

How quickly this summer has gone! I was lucky enough to get to Great Barrier Island for a few days in January. Mum and dad saved a row of lavender for me so I could see it in bloom. I also got to try my hand at cutting, tying, and hanging bunches for drying. In the intense sun, it was very hot work. Perhaps I should have waited till evening. Everyday (in my memory at least) was violently sunny. Popping down to the river for a quick swim was such a treat - refreshing, and even at times, exciting, with the shadow of an inquisitive eel sliding through the water towards you.

Back in Wellington, autumn is approaching. The weather, always changeable, keeps throwing up beautiful sunny days between the odd stormy gale. Every time I think perhaps that is it for warm weather, another calm and sunny day is offered up like a gift.



## Cindy Jemmett

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As the content of The Lavender Link is subscribed, comments made and advice given may not necessarily represent or reflect the policy or opinion of the New Zealand Lavender Growers Association.

# Secretary's Snippets

## A very warm welcome to our new members

Claire Hill from Canterbury has purchased a portion of what used to be Richrua Lavender near Rangiora.

Debra and David Alderton from Marlborough have purchased Marlborough Lavender from Tony Thoms.

Robyn Tootill from Palmerston North

Tony Anderson from Auckland, South Pacific Lavender Ltd

Plus some associate members Marion Hutchings and Don Harwood,

Glenn Stewart and Matthew Byrne

all intending to grow lavender in the future and just gaining as much knowledge as they can before planting. Please make yourself known to these folks and invite them along to your next regional meeting.

Hello Everyone,

I have finally organised a very important date to discuss the 2016 Lavender Conference to be held somewhere in the South Island around late Aug, Sept or Early October 2016.

We need people from the South Island who are interested in helping to organise this asap, so to that end there is an afternoon meeting 1pm, afternoon tea provided, at my place for anyone who would like to help with this, we don't have a committee as yet and thus we don't have a venue either.

Please come along and contribute your ideas and thoughts on the conference with a view to choosing a committee to organise this, we will have to forego the South Island conference and wait for the North Island one instead two years hence if this doesn't happen. Please shine your torch for the South Island, even a small contribution will help get it underway.

Meeting info:

Saturday April 11<sup>th</sup>, 240 Stanton Road Amberley, 1pm sharp with afternoon tea provided.

Kind regards,

Charlotte Brown & Family  
NZLGA secretary and meeting facilitator.

## Word from the Web Coordinator

Hi its Charlotte your website coordinator here,

the association has an oil and rubbings bank system in place that is under-utilised, where you can list your excess oil available and that is then available publicly on the website as a point of contact for individual negotiation and potential sale.

If you want to SELL your excess oil I strongly recommend you list your oil and/or rubbings on it. I have personally gained interest via this and subsequent sales.

To list, email me what you want to say and I will put it up on the website for you. email: [cdbrown@clear.net.nz](mailto:cdbrown@clear.net.nz)

# Lavender Creek Harvest Festival 2015

Susi and Vaughan White

Lavender Creek Farm  
Te Horo

Here is the announcement sent to local papers and radio stations, courtesy of a local journalist

## **STUNNING LAVENDER CREEK FESTIVAL**



Te Horo's Lavender Creek Farm hosts its spectacular annual harvest festival in January with two open days where the public can walk through fields of blue and watch the process from cutting to distillation.

It's the 20<sup>th</sup> year that lavender has been farmed and owner Susi White says it's the fascination of the brilliant colour, beauty of the natural rural surroundings, and the sea and Kapiti Island views which draw people year after year.

The lavender farm will be open on January 11-12 at 123 Settlement Road, Te Horo.

“As well as our locals we get people from all over the world

and from across New Zealand who want to capture the lavender on film or find out how we produce such pure essential oils used in health products and cosmetics.”

The festival will again feature a photograph competition and paintings by Pauline Hailwood's group of local artists.

For those who simply enjoy being in the country there are gardens including a lavender collection garden, a working essential oil distillery and small copper stills, short walks, a stream, and a vineyard and olive grove.

The lavender shop will have gifts for sale and tea, coffee and cakes will be available.

Public entry will be \$5 and this year the proceeds will go to the local Te Horo Rural Fire Force which will have one of its four-wheel drive fire appliances on show.

**Further Information: Susi White 06-3643682**





And here is the announcement flier which we print on glossy card to hand out to anyone visiting and also sent out by email one week before the weekend.

- See a working lavender farm

- Watch the harvester at work



- Follow a distillation process to the production of pure essential oil.

## Photography/Art Competition

Bring a hat and camera!

*Special distillation displays by Alembics*  
*Watercolour paintings from Pauline Hailwood's group.*

Tea & coffee available  
Donations collected for the  
Te Horo Rural Fire Force

# Lavender Creek Harvest Festival 2015

So what actually happened?

We were lucky with the weather. In the week before, we worked to prepare the farm in beautiful fine sunny still weather, thinking can this last. It did and that was crucial. We can't harvest wet lavender and no one wants to stand in the rain watching us.

We have children's drawing with a prize and run a photo competition. Here is the slip we hand out as people come in:

## Photo Competition

Please submit the best photos you have taken today (up to 5) to [lavendercreek@clear.net.nz](mailto:lavendercreek@clear.net.nz) by 31st January 2015.

Please note they may be used to publicise the lavender farm in future.

In other words we make no secret of our intention to use their photos to promote the farm. We have some great photos and no one has sued yet. (See page 1, for the winning photo)

The festival features the distillation in our new building, with crowds spilling out into the yard. But when they hear the clarion call of the harvester firing up they gravitate to see where it all comes from. Trailer loads of cut lavender come in from the field through crowds of onlookers.

The weekend depends on volunteers – friends, neighbours, family, wwoofers – and we have built up a collegial group of about twenty who come from all parts of the country to provide anything from harvesting, talks on lavender, tea making, photographing, collecting money at the gate, to the actual distillation which is managed by Susi often ably assisted by a son in law and neighbours. We also have established close relationships with the artists and the suppliers of Alem-bics copper stills.

This year we had stalls housing three locals selling preserves, herbs and plants. The firemen had one of the fire engines there with staff rostered on for the whole weekend. Children enjoyed getting into the cab, wearing a helmet and sounding the siren. Some big kids had a go too.

At the end we fire up the wood fired pizza oven and all the workers enjoy a final get together.

The festival was a great success. We had a total of 1000 visitors (500 each day) and collected six thousand dollars for the firemen. Susi presented a cheque to the fire chief for the newspaper (twice; two papers). This has allowed them to replace the failing fire siren which dated from the Second World War. Yes, I think they also text, but whenever their siren wakes us up we can groan - we did that.



Above: Old still room

Below: Fire engine!





# Lavender Creek Harvest Festival 2015



Left:  
Watching  
harvesting



Right:  
Watching harvesting - close up



Left: A well earned glass of wine



Right:  
The after party



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# New Journey Begins

Marion Hutchings

Hamilton

After some years of ill health including a double mastectomy 15 months ago, things weren't looking exactly exciting. After the op, I could only go with the recovery process. You just have to accept the situation and go with it. And while you are waiting, the weeds in the garden become huge at least a metre or so and you just watch, sadly.

Then the new journey begins, back in the garden grubbing those sturdy things out, couple of hours a day until finally, Restoration, plant heaps of flowers, vegies and they are all thriving.

The hunks not too pleased when you add that you might like a lavender patch, not too pleased at all. There's some luck, someone you know will sell you quite a few Grosso lavender at a good price too! So propagation starts, stops, stops, starts until you have many sitting in the prop tent. Not a huge success but you tell yourself just keep on keeping on. Never say die, its all up to you and you alone.

Quite suddenly there's lots of advice about how you can't do it at your age but there's one or two that believe in you. And the hunks coming round too, just great, I think to myself.!

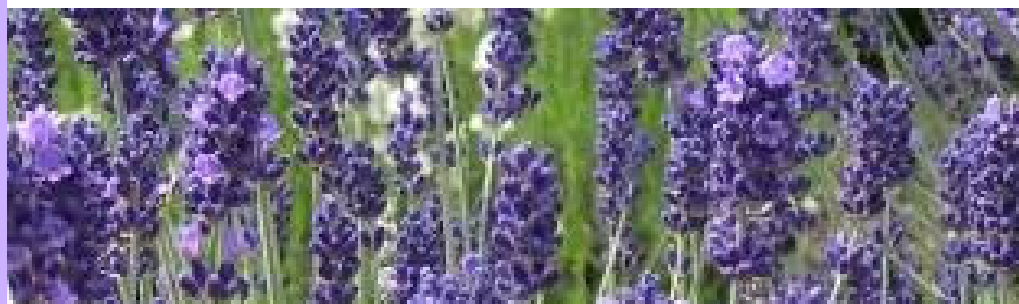
For me, life's an on going wonderful learning process and I find like everything new, there's so much to learn by doing it yourself, reading, reading, watching, listening to others. Fact observation is one of the key factors, keeps you on your toes.

The Lavender Association is a good little link to the world beyond propagation, I am thankful for the news, meeting others in our area and information made available through the kindness and, goodwill of groups who make time to chat and share

Finally, we are all very fortunate to have a piece of land to grow and see and know a field of lavender. My goal for this year is to have such a small field. To sit on my white stool and beaver away at cutting...the fragrant stuff.

That's it so far.

Marion





# Coatesville Lavender Farm

Our lavender oil distillation was marred by me using my new Alembic separating apparatus – it slid forward in its cradle while I was pouring in a 2 litre jug full of lavender and hydrosol - and the vessel fell backwards, taking a litre of Grosso oil with it, narrowly avoiding the almost full 1000cc pipette standing alongside the antique Italian jar that shattered to the floor, together with its contents. Oh glorious odours of lavender oil, permeating the whole of the barn and B&B building...and tears!!! The moral of this story is that the cradle needs to be on a firm, flat wooden table (not a plastic picnic table) and firmly bolted onto the table!!! Subsequently, our distillation yield was down this year...

We are currently lifting the whole of the Northern Grosso bed, transplanting most of the old plants (circa 2003) into the Southern terraces – our original beds planted in 1999-2000 so that we can rotary hoe/cultivate/plough the entire area and make mounded rows, to be covered with new weedmat (as per my original instructions to the planter at the time) and plant Pauline’s Grosso babies which we have meantime had to bag up into larger bags so that they survive until this operation is completed. Of course, nothing goes smoothly around here – we now find that the potato moulder, courtesy of Mike Allspach, does not fit my John Deere tractor, so modifications are required to “make it fit”!!! Another delay. The objective is to allow space between the rows for mowing strips, to make working in the beds easier and to allow visitors to walk between the rows rather than through the lavender during the December/January flowering season each year, which has had a pretty devastating effect on the plants, over time.

My team of Help-Xers – three Germans (Fabio, Theresa and Janic), and two French (Lisa and Guillaume), have come all the way across the world to experience working with lavender, which they have at their own back door but have never had anything to do with. Amazing really! I’m praying that the transplants will survive (watering in with added comfrey water as we go) and will replenish the older beds on the Southern terraces, making way for the new plants to be established in the Northern Grosso bed. Time will tell!

Best regards  
Tricia Henderson

Trisha Henderson  
Coatesville Lavender Hill

25 March 2015



### Looking for a distillation unit

Hi,  
we are growing Manuka for oil production and are looking for a complete distillation unit. I was wondering if your association members may know of a unit which may be available for sale. We would prefer one which could handle at least 100kgs per charge.

Thanks and Regards,

Tony Lett  
tony@wearegoodsport.com

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## Some Useful Articles

The following pages contain articles about distillation, and managing micro-organisms.

The articles are both historical and of great value to both new and existing members.

The one from Denis Matthews has not seen the light of day before, except to a select group of distillers. It will enable members to be far more intelligent about distilling in future.

The one about the need for cleanliness in handling plants etc is from Roger Jordan and contains vital information that all members need to understand and follow. Our association is about following the best standards and protocols in the production of lavender oil so that the buying public may have complete confidence in the products we produce.

Any questions relating to the, may be directed to Peter Jemmett our chairperson or Russell Rofe, immediate past chairperson.

- Russell.



# AN OVERVIEW OF DISTILLING AND HANDLING PROTOCOLS

## Introduction

New Zealand lavender oils and other products need to be niche marketed on the basis of their quality and uniqueness of character. It is important to realise that every cultivar has its own unique fingerprint in terms of oil composition and odour profile. This is determined principally by its genetic material. Whether this potential is realised is dependent on a large number of factors namely soil type and nutrient availability, climate, conditions at time of harvest and subsequent handling, distillation process and storage of oils etc. As new oil cultivars are developed they may have some components outside of the standard specifications for lavender oil. This does not necessarily mean that the oil is inferior, just different. So keep an open mind on future possibilities. Some international buyers are looking for different unique oils.

Quality, so what makes quality? This is a whole subject in itself, so briefly. Quality is suitability of the product for the buyers intended end use. It has to smell good. So the psychological and emotional effects of essential lavender oils on the human psyche is the all important factor. The exception is if the purchaser wants an oil high in a particular component for blending purposes. Batches need to be consistent.

Both as an industry and individual businesses, long term viability is based on good planning, knowledge and commitment:

- ◆ Accurate market information;
- ◆ The best genetic plant material available;
- ◆ Highly skilled growers/oil producers;
- ◆ Best harvesting, processing and handling technology;
- ◆ Effective quality management and production protocols;

Undoubtedly the most important component of success is good planning. You need to look at your product/s markets and the competition. Take note of your strengths, weaknesses, opportunities and threats, this will result in you identifying key areas, objectives and strategies to target. It's also paramount to monitor results and constantly appraise opportunities and update your information. Research & Development is vital to stay ahead of the competition.

## PRODUCTION PRACTISE PROTOCOLS

### 1. Identification & selection of plants

- Choice of cultivar - Determined by end use and what the market requires. Look before you leap! All plants used for oil production must be correctly identified. Genetics is the major factor in determining the end result.

### 2. Site selection & basic nutrient requirements

A sunny site with a free draining soil type (i.e. sandy loam, stony or alluvial soils) should be selected. Lavender thrives in soils with high available calcium which should be added in the form of limestone or Dolomite. Dolomite also provides magnesium which enhances the uptake of Ca. If your soil Ph is approaching 7.0 or higher, use gypsum (calcium sulphate) which will add calcium without raising pH levels. High pH levels reduce the availability of some nutrients e.g. iron.



Lavender naturally occurs in impoverished calcareous sites. Too high a nutrient level (particularly nitrogen) will cause excessive leaf growth at the expense of flower and oil production. Nitrogen addition is best therefore in the form of Blood & Bone which needs time to release its nutrients. Trace elements should be added only for any inherent deficiencies, based on a soil test.

3. **Irrigation.** Of established crop is only necessary during very dry periods, or when planting young stock. The exception is if taking crop for cut flower, as the market requires long stems. Maintenance of adequate soil moisture content can promote increased stem length.

4. **Spraying.**

- Full records need to be kept of all sprays applied around or over crop. Note: No sprays are currently registered for use on Lavender in New Zealand. This means you must consider the legal aspect and possible consequences of using sprays that are not registered for our specific crop.
- No sprays should be applied within two months of harvest.
- Pesticide & fungicide application should be kept to a minimum.

5. **Harvesting:** Set up good documentation (a data base is ideal) and clearly record items such as rainfall, irrigation, sunshine hours, temperatures and wind conditions during the two weeks prior to harvest. Plus an overview of the season in general. Record detail such as stem length, water stress, crop moisture content, cultivar, date harvested, age of plants and how harvested i.e. hand or machine. Overcast, cold or wet conditions before harvest are likely to reduce quality and yield, as are excessively hot temperatures. Because there are so many variables, it is not possible to define a set of rules as many factors are beyond the growers or extractors control. The main sources of variation should be restricted to either the site factors (soil, water availability, aspect etc), cultivar/age of plants, stage of maturity and climatic conditions immediately prior to harvest (rainfall, sunshine hours, maximum temperatures etc). As growers gain experience of their plantings' performance in different seasons, the better they will be able to minimise variations in oil quality from season to season. This illustrates the fundamental need for methodical and detailed monitoring and recording of data on all aspects of the production and extraction systems, plus the pressing need for continued research in aspects where information is lacking.

- Timing of harvest i.e. stage of flower head (spike) development at harvest. "Develop a Nose" – by far the best indicator. However as a *rule of thumb*, harvest when half the flowers on spike have withered.
- Need at least three days of fine warm weather prior to the start of the harvest to maximise potential oil yield and quality.
- Start harvest in morning after dew has evaporated off crop, not in the heat of the day or during windy conditions especially a hot dry N. Westerly. This is not always practical for large crops or if booked into a time slot at the distillery. In effect, a balancing act often.
- Length of stalk taken, aim to cut at about 50mm.
- Hygiene, be careful not to spread Alfalfa Mosaic Virus.
- Post harvest handling of crop. Immediate distillation is ideal, if the flower spikes have to be stored for a period, they need cool conditions, spread crop

out on a sheets laid on the floor of a shed. This will soak up excess moisture and stop crop heating up – *Composting*.

- All plant material when harvested should be free from weeds and other extraneous material such as Eucalyptus leaves and Pine needles.

## 6. Distillation

- Observe all health & safety protocols and regulations.
- Documentation is vital! Should include date, batch No., Clients name, Cultivar distilled, Oil yield (mls/kg), and quantity (litres), Weight of flowers per cartridge. Time taken for charge to reach 100<sup>0</sup>C after steam valve opened.
- Maintain good Still hygiene; this prevents carry over or off-notes.
- Use cartridges to make loading/unloading efficient. Take care with packing densities, uniformity is vital, both aspects influence oil yield.
- Disposal of waste water and plant material after distillation process in a responsible and legal manner.
- Preheat still pot and separator (good separation of oil & water occurs at 45<sup>0</sup>C).
- Drain out condensate between still runs.
- Open steam valve slowly to prevent sudden pressure drop sucking boiler treatment chemical into still pot.
- Reduce steam flow when first condensate appears from the condenser (This should take no more that 5minutes), will reduce energy requirements. Determine setting for steady state operation that maintains temperature and extraction rate efficiency.
- Monitor still pot pressure to ensure no outlet blockage occurs, safety valve should be fitted and set correctly, check regularly.
- Ensure condensate trap on steam line to still pot operating efficiently.
- Still pot should be well insulated to minimise heat loss, on large units a steam coil on the outside of the still pot is advantageous.
- On large units (>100kg) an air vent should be fitted to release air displaced by the steam at run start up.
- Monitor changes in the oil composition by nose (learn to evaluate) during distillation to determine finish time. Should be around 30 minutes per run when system optimised.
- Use hot water from condenser to maintain boiler water operating level before running to waste.
- A temperature thermostat (needs temperature feedback sensor in condensate stream near exit from condenser) on the water inlet of condenser ensures the optimum condensate temperature into the separator of 45 to 50<sup>0</sup>C is maintained.
- The Separator needs to be sized for the volume of condensate its handling per unit of time, so that the downwards velocity (outside the stilling chamber) does not exceed the upwards velocity of the separating oil particles which is around 9 to 12mm/min at these temperatures. As small oil particles rise slower than larger ones, condensate flow into the separator needs to be smooth.



## 7. Distillation Performance Shortfalls

- Slow pre-heating is the most common fault; this is caused by inadequate steam capacity and/or excessive moisture in flower heads. This results in oil losses as excess water build up in the charge carries oil down through the material ultimately accumulating in the still base. Also hydrolysis of linalyl acetate to linalool may occur effecting oil quality.
- Excessive moisture content of steam may cause similar effects as slow pre-heating or inadequate steam flow. Conversely super heating of steam produces dry steam which may raise temperatures well above 100°C causing degradation of compounds and off notes.
- Still hygiene, dirty equipment and carry over of other plant material can contaminate oil or cause off notes. Clean with steam wand and by steaming out unit.
- Sealing and connecting materials: these need to be steam & oil resistant e.g. Neoprene rubber or 104 grade stainless steel dairy fittings. This avoids contamination of product. Risks of leaks with implications on safety, plus loss of oil and energy are also avoided.

Oil yield is affected during distillation by a range of design faults such as inadequate steam flow, condenser capacity, separator residence time and slow preheating. Conversely growers and/or distillers can exercise direct control over distillation time and ensuring even packing of flower spikes. Over packing and uneven packing can be detected by nose when emptying the distilled flower material.

## 8. Aging and storage.

Fresh Lavender oil has a green note; this is caused by alcohols, aldehydes and terpenes. Like wine, lavender oil needs to be aged for at least six months. Storage factors are also important; keep cool approx 4°C and in the dark. No air preferably in head space and no free water in the oil. Containers should be clean preferably new and leak proof. Free water can be removed overnight in a vessel containing anhydrous sodium sulphate, decant oil off into a clean container. Freezing the free water phase has been used by some small oil producers. Dry nitrogen gas can be used to replace air in storage containers headspace if buyer requires.

Whilst further fine tuning of growing and production techniques will undoubtedly occur, the cost of distillation in relation to the value of quality *Lavandula angustifolia* oil (which is were we should be heading for the bulk of production) is relatively small. Therefore at the current state of expertise available in the industry we are better to concentrate on growing the best cultivars, and factors which effect oil yield and quality.

# Managing Micro-organisms: fidelity, friendships and fiends

Recent reports of the presence of SHAB in lavender crops of a member of the New Zealand Lavender Growers' Association have been discounted.

Samples from the crop have been examined by Dr Ian Harvey, who has confirmed that the fungus was identified as a phoma common to varieties of grape and kiwifruit, among others.

Communication with MAF Officials has confirmed that no instances of SHAB have been recorded by them in any crop in New Zealand. This is indeed pleasing advice given that this disease has wrought havoc in the Northern Hemisphere for decades.

Phomas are latent in most New Zealand soils. They are transported by mechanical means, by moving air or by the movement of the soil itself. The mere presence of the phoma even upon plant tissue does not decree that the plant shall suffer from it under most conditions, however when conditions suit, fungi can attack the plant through dried or damaged tissue. Some years ago a study was performed on the stables of Sir Robert Falcon Scott's Antarctic Expedition at Scott Base, wherein the presence of Anthrax was identified. In discussion with a Senior Scientist of Agresearch, the writer was advised that it would be surprising not to have found it, as this disease follows horses and livestock without serving undue harm. It is when that animal dies, decays and disintegrates that the spores are released to float airborne, and to be potentially inhaled by others, that infection occurs. This fundamental process is recognised today through the convention of burying the dead.

The most recognised phoma in New Zealand rest in the drier soils of the Canterbury Plains, Hawke's Bay and no doubt in numerous micro-cosmic sub-regions, many now desired for the traditional equatorial crops. There they rest until activated by the passing of heavy feet, machinery, insects, birds, the splatter of raindrops or the wind. Any distressed plant is an inviting target for attack by the mobile spores. The course of such progression across a crop may not necessarily be uniform, due to the likelihood of multiple starting points, the erratic nature of distribution or the vagaries of the eddies and whirls of a localised wind pattern.

The use of a mix of plant variety within a major crop region can in some way mitigate the risk of total crop failure - what prospers this year may wane the next - and all experienced growers will have witnessed these changes. A spread of cultivars of lavender, within the species, smoothes the risk. The matter of ascertaining which cultivars may excel in a particular position can be evaluated only by a trial.

Groves of any crop employ natural biological processes, all amended and modified in accord with the season, and the vagaries of the wind, rain and snow. Then we apply our own "non-Darwinian" focus to culture, shape, control and excite the crop to make it best do what we would wish. Nature is a fickle operator and given even the best intent and methods known, will still offer new variation and shape season to season. Given that lavender varieties have been under human influence for in excess of 2000 years, there has been ample time to learn to grow a perfect crop year after year and yet we have not, and neither will we, as the plant will decide for itself how to prosper or modify and when to atrophy and/or expire; this is the exciting aspect of working with nature.

To best avoid the onset of fungal strike:

- Remain aware of the nature of local soils and activities along with the variety and health of crops on surrounding properties.
- All growers enjoy the attendance of others into their crops to inspect, view, compare and enjoy. Every visitor brings with them the risk of infection such as one carries when visiting the crops of others. Members of the New Zealand Lavender Growers Association socialise with other growers and this is commendable; however, clothing worn when visiting other growers should be fresh from the laundry and should be again hot-washed and dried immediate upon returning home. No "work" clothes should be worn "off the farm". Spores can be contained in trouser cuffs, skin and clothing and within the coat of the family pet. Isolation, as with those infections transmitted from one person to another, is the fundamental pathway to well-being with repeat instances most effectively negated by a return to a sedate, prudent and individual lifestyle.
- The sharing of equipment must be undertaken with the greatest caution, ensuring that all nooks and crannies of the device are washed clean of all dirt and debris and sprayed with fungicide. The importation of used equipment in particular, exposes the grower to extreme risks of infection. Any material found on equipment imported from on-shore or off-shore or from where lavender infections are suspected should be immediately reported to MAF and the machinery cleaned and disinfected prior to being introduced to the crop.
- Ensure irrigation is appropriate and efficient; Lavender does not prosper without a consistent supply of fresh water or with the roots constantly wet, while excessive overhead irrigation can



induce and encourage mildew within the foliage. The use of tapes underground should be made with caution as they are subject to blockage when additives are streamed through and unless a constant flow by pressure and volume is applied, longer tapes will preferentially irrigate the upstream sections or low-lying areas of each run. Any crop totally reliant upon mechanical irrigation will suffer from the failure of it and therefore great attention must be paid to the maintenance and design of such systems. In planning any crop reliant upon irrigation, the appraisal of water stocks for character and volume throughout the entire season is imperative.

- Lavender is not an easy plant to grow consistently. We all can grow lavender varieties well, but a commercial crop demands that all of the crop must prosper. Yet, each lavender plant must be catered for to ensure its individual needs are met. This care begins in the field with the planting. Any plant set with roots exposed to the sunlight or drying air will be in distress. The effects of this may not immediately appear but with the plant's ability to sustain extremes inhibited, any further distress will be critical to its production, and even survival. Most lavender in New Zealand is hand planted. Mechanical means are available and attractive where large acreages are involved. Mechanical harvesters must be adjusted, set and operated to ensure that each plant is secure, planted to depth and upright; this is no time to seek efficiencies with haste. Even when mechanised, planting will prove to be a slow and purposeful process.
- While the plant may be exposed to mechanical damage through the dormant months through weeding and fertilizing programs, the critical phase where distress mostly occurs is during harvesting. In harvesting the crop, the tissue of the plant is opened and exposed at a time of the season when spores are at their most aerobic. Add to this the lifting of the surface by passing machines, the soil splatter from heavy summer showers, the fresh exposure to sunlight and wind for the plant from the removal of the bloom canopy and the passage of personnel through the crop, and it is clear that any latent spore is raised to its acme and provided with the most ideal conditions to enter and attack the plant-stock - all when the plant is at its most vulnerable.
- While little can be done to hold back the wind or shield the crop from the rain, care should and must be taken when moving machinery through the crop. Most critical is avoiding the tearing of the crop and/or lifting of the plants by the reckless application of the harvester. Machines reduce work for personnel but there are always

limitations to their performance. The first stress made upon the plant in mechanical harvesting is in the gathering of the bloom volume ahead of the cutter. The prerequisite for a mechanism which walks toward the plant without lifting, driving or drawing the plant is fundamental to good harvester design. A failure to properly provide for these requirements will leave the plants drawn from the soil in full or in part, inducing an immediate fatal effect.

- Cutters vary, but two types are common: the rotary head and the reciprocating blade. Rotary heads are derived from grass-cutter technology. While they seem to offer an insatiable ability to sever the bloom from the stalk, the faster the cutter progresses through the crop, the more shattering and tearing the cutting action. Reciprocating cutters mimic the age-old mechanism of the scissor blade. Reciprocating blades have been favoured due to their relatively low power requirement, their clean cutting action and the ability to both support and cut the crop simultaneously. The Achilles heel of the reciprocating blade is, however, the forward speed by which it may be applied.
- Most reciprocating blades are approximately 75mm in depth, with two passes across the distance between the fingers per drive rotation, giving a total of 150mm maximum of crop feed per revolution. Assuming a rotation speed of 1000 RPM, the maximum forward speed for the cutter through the crop is 150,000mm or 150 metres per minute! Just 9 kilometres per hour. Exceed this speed, and each plant in turn will be drawn, torn and left distressed and vulnerable to the first invader to present itself (and the second, third and on ad nauseum). Of course, all of the above assumes that a clean cut is made at every pass so a humble 5-7 Kilometres per hour is more likely. A speed perhaps half of that is sensible and effective.
- All good references on the topic of growing lavender speak of the need to monitor and address the crop, searching for predators, damage, decay and distress. Plants are of nature and it is we who are the foreigners within their growing spectrum, with our soil compressing, branch distorting progression through the crops, with our phoma-laden trouser cuffs and hairy arms. We can really be but bystanders armed with weaponry mechanical, chemical or otherwise to make good what is lacking and provide the best of what is required. Nature will appear fickle but then it is we who expect the constants and consistency; the plant will likely be happy with just making the day. When crop failures occur we can mostly see the result of our own

short-comings. It is no time to place blame upon the plant or upon others.

What actions then should the prudent and responsible grower take when an infection appears in their crop?

- The isolation of areas affected by disease is a time-honoured mechanism for containment, so this should be applied. Should the grower wish to hold consultation with others (especially growers) these should be warned of the presence of an infectious disease and provided with clothes to wear while attending the crop or destructible items to be discarded, hot-water laundered or destroyed on the farm; the area should be closed to visitors.
- Samples should be taken by a professional for examination by experts. Experience shows that the careful selection of such expertise is essential, as with rare diseases there is little experience to be found. Even some experts in the field are not equipped to make the examination independently, while institutions with the appropriate apparatus may not hold useful references from which to compare and establish an absolute result. New technologies offer examination to a degree not foreseen just a relatively few years ago. DNA tracing is part of this technological age of wonder and yet, the identification of an organism upon a sample does not necessarily mean that that organism is in fact the cause of the problem. In some cases an excess of information rapidly clouds the perspective
- Given confirmation that a serious infection has occurred, the process of remedy may be applied. This will likely consist of treating the crop with an approved fungicide. The prudent and responsible expertise will be required to advise MAF of their findings. MAF may wish to conduct their own investigation and if necessary, apply their own isolation procedures. Meanwhile the member-grower must notify the Executive of the Association as while serious infections of crops will certainly prejudice other crops if transported, the stigma will be insurmountable in the international market, should significant infection be determined.
- Following the treatment of the crop, all decayed plant matter should be destroyed along with un-treatable clothing and materials by burning in a device which assures that no spores will be convected in the hot air rise over the fire. No plant material should then leave the property until the crop is assured to be cleared of the disease. Operating methods should be re-appraised and modified to best inhibit the potential for further outbreaks.

Some members have chosen to grow organically and that is a fine and reasonable choice. Most New Zealand farmers would qualify for this category without a change of habit. We are, despite the erratic advice from those who would cast our nation as a plague upon eternity, carers of nature. However, when one grows organically, the protections and assistance provided by technology are rendered void. The risk of defeat by infestation and soil depletion is exacerbated. Putting a sign at the gate advising that "all is organic here", or a wide yearning for a utopian environment that never was, will not provide defence against, fungi or phomas. It just makes the chances of failure inherently greater. It is therefore up to the grower to wisely fill the gap and utilise all powers of wisdom and energy available by natural means to overcome all threats. It is this that makes "organic" the achievement recognised in the price.

The New Zealand Lavender Growers Association, as in all bodies of common interest, does not prosper from applying a central wisdom to all things. Rather, we build a strength from the input of many; in this case the membership. In sharing a common interest, members also share a common responsibility to protect and support the association and each and all other members. Members can assist other members in times of their need and seek the support of fellow members at the time of theirs. When matters do not proceed as desired and a remedy is to be applied, it remains imperative that members consider their fellows, the Association and the common good, and that they practice prudent and proper process to best support and protect the interests of all.





**THE NEW ZEALAND LAVENDER GROWERS ASSOCIATION  
INCORPORATED**

**APPLICATION FOR DISTILLERS CERTIFICATE**

**NAME OF APPLICANT:**

**LOCATION OF STILL:**

**DESCRIPTION OF STILL:**

**I/We, the Still Owner specified above, HEREBY APPLY for the issue of a Distiller's Certificate for the year ended 30<sup>th</sup> June 200 .**

**I/We UNDERTAKE AND AGREE as follows:**

- 1. That I am a current financial member of the The New Zealand Lavender Growers Association ("the Association") and will remain so during the currency of the Certificate.**
- 2. To comply and to ensure that all operators of the Still comply at all times with the production practise protocols from time to time laid down by the Association.**
- 3. To keep full and accurate distillation records containing such information as may from time to time be prescribed by the Association and to make those records available to the Association or its designated representative upon request.**
- 4. At the conclusion of each distilling season to provide a full report to the Association on the season's operations containing such information as the Association shall from time to time prescribe.**
- 5. To allow the Association or its designated representative access to the Still at all times to monitor the operation of the Still.**
- 6. To maintain adequate public liability insurance.**
- 7. To ensure that the Still is operated by persons approved by the Association.**

**I/We warrant and undertake that the information contained in the accompanying questionnaire is true and accurate in every respect.**

**I/We further ACKNOWLEDGE AND AGREE that:**

- (a) That the issue of a Distiller's Certificate is at the entire discretion of the Association.**
- (b) That in the event of any breach of the above undertakings or any of the conditions of the certificate the Association may cancel the Certificate without notice.**

**I/We enclose \$ \_\_\_\_\_ in payment of the Application Fee for the Licence prescribed by the Association.**

**DATED \_\_\_\_\_ 200..**

.....  
***(Signature of Applicant)***



QUESTIONNAIRE TO ACCOMPANY APPLICATION FOR DISTILLERS CERTIFICATE

*(All questions to be answered)*

QUESTION

ANSWER

Boiler:

1. Type of Boiler
2. Capacity
3. How Fired
4. Do you hold a current certificate for the boiler
5. Is the boiler maintained by a qualified boiler engineer
6. Source of water used for boiler
7. What chemicals are added to boiler water
8. Average temperature of water used for cooling

Still:

1. Capacity of still
2. Number of baskets
3. Material used in manufacture of still and baskets
4. Is there a two way release valve at top of still
5. Is the still lagged

Distilling Practise:

1. Do you weigh each load before distilling
2. Do you record pre-heat time (i.e. the time between turning on steam and the temperature of the condensate reaching 45 degrees C.
3. Do you steam out the still and baskets and condenser between different varieties of lavender
4. What other oils do you distill.
5. What measuring equipment do you use for oil.
6. What procedures do you adopt for distilling organic oil.
7. Do you keep the following still records:  
Growers name  
Variety Distilled

Date and Time of harvest  
Date of Distillation  
Age of plants  
Condition of plants when harvested  
Condition of plants when distilled  
Weather when harvested  
Weight of still load  
Pre-heat time  
Distillation time  
Oil Yield

8. What reports do you give to your customer

9. Do you carry public liability insurance



# OIL QUALITY ASSURANCE SELF ASSESSMENT CHECKLIST

## OIL SHED – ROOM

- Adequate light
- Ventilation
- Functional Design
- Sound Construction
- Clean & Tidy
- Safe footing
- Dust Minimised

## WATER SUPPLY

- Drinkable quality
- Ample supply

## POWER SUPPLY

- Human safety

## INSURANCE

- Public liability

## KNOWLEDGE & TRAINING

- Staff training

## MANAGEMENT

- Customer identified
- Customer requirements
- Customer report
  - written
  - verbal
- Accurate records
- Current boiler certificate

## BOILER & STILL POT

- Cleaned Out
- Preheated
- Each load weighed
- Density of packing in still basket
- Time 3-5 minutes – condenser to run
- Temp at separator 45°-50°
- Temp of distillation 25-30 mins
- Stainless Steel, glass and food grade rubber
- Stillpot condensate drained off between runs
- Measuring equipment stainless steel or glass



## **PRODUCTION PRACTISE PROTOCOLS – LAVENDER OIL**

### **1. Identification of plants:**

All plants used for oil production must be identified by species and cultivar.

### **2. Spraying:**

- (a) Full records to be kept of all sprays applied to plants.
- (b) No sprays to be applied within two months of harvesting.
- (c) Pesticide applications to be kept to the minimum.

### **3. Harvesting:**

All plant material when harvested to be free from weeds or other extraneous material.

### **4. Distillation:**

- (a) Full records to be kept for each batch distilled. Such records should include:

- Variety of lavender distilled
- Quantity of oil produced
- Weight of lavender distilled

- (b) Only natural product to be distilled.
- (c) Each batch distilled to contain only one variety of lavender (any piggybacking to be on the same variety.)
- (d) No chemical or other additives to be used in the distillation process.

### **5. Testing:**

- (a) All samples to be taken in accordance with recommended sampling procedures.

- (b) All samples submitted for testing must be fully representative of the variety of oil to be tested. If the sample submitted is intended to relate to oil from more than one distillation batch then a sample of oil must be taken from each such batch and thoroughly mixed before the test sample is taken. (Note – if oil from only one batch is submitted for testing then the test result, and any certification, will only relate to that batch.)