

Small scale Sustainable Herb Farming

Lessons from France and Australia



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1. Executive summary

The aim of this report is to outline the key elements of what makes small scale medicinal herb production viable in France and Australia. The countries were chosen due to the comparable economic climate to the UK which has a disproportionate amount of herb farms in relation to the amount of herb products that are imported, which was £100 million in 2016. Increased herb production in the UK has many potential economic, environmental and social benefits.

A questionnaire was designed to give a broad overview of the farming and business operations; the aim was to examine different aspects of the businesses, such as, the vision and values of the farmers, business start-up, land and resources, farming and processing, finances, sales and marketing, support models and social or environmental benefits of the farms.

The research visits were primarily herb farms but also included, herbal manufactures and herb producer's co-operatives. The herbs referred to in this report are used for non-culinary purposes, including herbal teas, aromatics and the production of herbal medicine products

The key lessons from France were to focus on high end products and remain responsive to the market. Also, small scale technology is available that increases the efficiency and viability of the business as small scale herb farming is very labour intensive. Co-operatives and education play strong roles in making herb farming more accessible to new entrants and herb farming can be a lifestyle choice as well as a business choice.

The key lessons from Australia were that scale and technical knowledge can be advantageous when entering into the herbal market. Alternative approaches to sales and unique products may be needed to develop a strong customer base as the market is limited for producers in Australia.

Small scale herb farming is viable for farmers in France and Australia and could also work for small scale farmers, including new entrants in the UK.

Recommendations to enable a growth in small scale farming in the UK include, farmers to develop a broad skill set. Herb farming can be a very diverse job role, from the horticultural knowledge behind the production of the raw material to processing herbs into a saleable value added product, followed by the marketing and sale of the product too, along with on farm DIY, mechanics and plumbing knowhow. Unless a farmer is in a position to outsource these responsibilities dedication and a broad skill set will go a long way. As farming can be very labour intensive the innovations in farming and processing equipment are essential to long term viability.

The herbal industry is highly regulated so understanding regulations and obtaining the correct licenses is essential. Managing expectations from a herb farm enterprise is important, the section of the market that a small scale herb farmer is in still needs developing and may require unique products and innovative sales and marketing streams.

Recommendations for the UK herbal industry include building relationships with small scale herb growers and offering a fair price for UK grown herbs. There are higher costs involved in production in the UK but the payoff would be a higher quality, more fresh and fully traceable product.

2. Introduction

This report explores the viability of small-scale herb production which is done through examining small scale herb farming in France and Australia. The herbs referred to in this report are used for non-culinary purposes, including herbal teas, aromatics and the production of herbal medicine products.

The research was undertaken during a 2019 Fellowship funded by the Winston Churchill Memorial Trust. The Fellowship enabled overseas travel to France and Australia to bring back models of best practice for small scale herb farmers and the herbal industry in the UK.

i) Herb farming and herbal imports in the UK.

Currently in the UK we import a large quantity of medicinal and aromatic herbs that are used in teas, cosmetics and the herbal medicine industry. There is little accessible data regarding the volume of medicinal and aromatic plants imported into the UK currently. MAP-EXPO reported that in 2014 alone, 10,000 tonnes of medicinal and aromatic plants and a further 5,000 tonnes of plant extracts are imported into the UK each year. This equates to around £100 million pounds worth of imports every year. (MAP-EXPO, 2016)

At present, there are a limited number of herb farms within the UK. Possible benefits of increasing herb production in the UK include:

Increased quality of raw materials and end products for manufacturers.

- Herbal raw materials have a relatively short shelf life, as with time the products and the phytochemicals within the plant material degrade. Growing herbal products in the UK would reduce the time that herbs spend in transportation and storage, providing a fresher and higher quality product.
- Fresh plant material is required for some manufacturing processes. Increased herb production in the UK would allow for an increase in the use of fresh plant material in herbal products.
- UK grown crops ensure guaranteed tractability of crops. Imported herbs are often bought through wholesalers making traceability more difficult.

Opportunities for diversifying production in the UK

- Farmers are interested in working with new crops. As demonstrated by the level of imports into the UK, even being able to access a small portion of this market could create an additional income for existing farmers or new opportunities for entrant farmers.

Opportunities for farmers to add value to their crops through processing

- The transformation of raw materials into value added products can enable farmers to increase their income. Herb farming creates a wide range of opportunities for farmers to add value to their crops through full or partial processing.
- Drying, distillation, alcohol extraction and oil extraction are some of the many ways that herbs can be processed on farm

Shorter, more sustainable supply chains

- Increasing the quantity of herbs produced in the UK for the UK market would reduce the need for transportation and consumption of fossil fuels.
- Through increased farming of herbs in the UK, the potential to reduce the use of wild harvested crops and the conservation issues caused by this. In 2004, the conservation

charity Plantlife published a report explaining that of the 1300 medicinal plants used commercially in Europe, 90% of them are wild harvested. (Plantlife, 2004)

ii) Herbal products

There are a wide range of uses for medicinal and aromatic herbs, both as a raw material or processed in some way to extract the phytochemicals of the plant. These include food products and cosmetics, as well as a range of herbal preparations used by the public and by complementary health practitioners. This gives a wide scope for value added products for anyone involved in producing herbs.

Some of these products are described in the table below, along with the processing techniques used:

Product	Description	Processing technique
Tea or infusion	Single or mixed herbs used as a tea for culinary or wellbeing use.	Herbs are processed by drying.
Essential oil	An essential oil is the volatile oils extracted from a plant. These are aromatic and highly concentrated.	Essential oils are extracted through the distillation process.
Hydrosol	A hydrosol is the water created through the distillation process. It has cosmetic, therapeutic and occasionally food uses. E.g. Rose water.	Distillation
Herbal oil	A herbal oil is a base oil containing oil soluble plant phytochemicals used for therapeutic or cosmetic purposes.	Dried or fresh herbs are steeped in a base oil
Herbal tincture	An alcohol extract of a herb that is used for therapeutic purposes.	Extraction of phytochemicals from fresh or dried plant material through steeping or percolation with alcohol.
Gemmo	A glycerine and alcohol extract of plant bud material used for therapeutic purposes.	Extraction of buds and young plant parts with alcohol and glycerine.
Cosmetics	There are a wide range of cosmetic products that use fresh or dried herbs as ingredients including soaps, creams, balms, shampoo etc.	Various – specific to the product.

iii) What is meant by sustainable farming?

This question is very complex and deserves a whole document in itself but put generally and very simplistically; it is meeting our current needs without sacrificing the ability to do this in the future. There are three areas of concern here, which all intersect, environmental, social and financial.

Environmental Sustainability – This means farming in a way that protects or regenerates soil and natural ecosystems. These are the spring of all our resources, soils, oceans, woodlands, grasslands etc. We must farm in a way that allows this to continue.

Social Sustainability – Is the ability to achieve well-being for all. This could mean, fair wages, appropriate housing and working conditions as well as providing something of value to your community.

Financial Sustainability – Requires a business to produce a financial profit. Without healthy cash-flow and responsible use of money a farm will not be able to continue.



iv) Why small scale?

The report is focused on small scale herb farms. For the research, a definition of a small scale farm being 20 ha and less is used. This originates from the definition given by the Landworkers' Alliance publication 'A Matter of Scale' A study of the productivity, financial viability and multifunctional benefits of small farms (Laughton, 2018).

The report carried out in 2017 highlights the following points:

- Small organic farms are often more productive, and farmers obtain higher yields than field scale, non-organic farms.
- Small mixed farms require lower inputs and produce less waste than monoculture farms and may have greater resilience.
- The average number of workers employed per hectare on a small farm is much higher on small farms (an average of 0.68 FTE per hectare, compared to the national average of 0.026 per hectare).
- Small farms offer multifunctional benefits in addition to production. Environmental benefits, such as increased biodiversity and topsoil improvement and social benefits, such as the provision of public education about farming and building community.

3. About the research

i) Chosen countries of research

France and Australia were the countries chosen for researching small scale herbal production. It was essential that the countries chosen had a comparable economic climate to the UK to ensure that any findings were relevant to UK herb growers. Both France and Australia had an increased level of small scale herb farming in comparison to the UK and both countries had differences in the approaches that were taken.

ii) Methodology

To investigate the viability of small scale sustainable herb farming, visits took place to seven herb farms in France and three herb farms in Australia. In addition, visits were undertaken to a herbal processing co-operative in France and two herbal manufacturers in Australia.

During the farm visits, which varied in length between one day and one week, the working practices of the farms were observed. Each farm business also took part in a two-hour interview to explore the different areas of their businesses in more depth. (See Interview Questions in Appendix 1).

The questionnaire was designed to give a broad overview of the farming operations and was split into areas to examine different aspects of the businesses. These areas include, the vision and values of the farmers, business start-up, land and resources, farming and processing, finances, sales and marketing, support models and social or environmental benefits of the farms.

The farms were chosen through desktop research in the UK which identified that the farms were:

- Under 20 hectares in size.
- Active businesses that were growing herbs and trading products
- Farms using sustainable growing methods (primarily organic farming methods)

There were several limitations with the selection of farms for the research. As the farms were active businesses, some of the farms contacted did not have the time or capacity to take part in research. This was often true of larger farms that were approached.

In addition, it was difficult to access farms and farmers that did not sell direct to the public due to their limited presence on the internet. This included many French and Australian farms that sold directly to processors and small French farms that were part of large co-operatives where the co-operative took the product to market.

A further limitation was that although a translator was used to support communications, the lack of French language knowledge was a barrier to the initial communication with French farms.

4) Lessons from France

i) Summary of farm visits

In the first part of the research, over the course of a 25-day period, a total of seven visits took place to small herb farms across six regions of France.

The farms businesses varied in terms of their physical size, the products sold herbs grown, time in operation and the number of staff working on the farm. Four out of the seven herb farm businesses visited were family run farms (L'Amante Verte, Jardin du Centaure, Ouma Plantes, Valyherba) one was run by an individual as part of a larger farm (La Ferme de La Quinatere) and two farms were run by two or more business partners or 'farming associates' (Avelenn and La Ferme du Bien Etre).

The table below briefly summarises the farms visited in the first part of the Fellowship:

FARM NAME AND BUSINESS OWNERS	FARM LOCATION	SIZE OF FARM	NUMBER OF HERBS GROWN	PRODUCTS SOLD	LENGTH OF TIME IN OPERATION	NUMBER OF STAFF
L'AMANTE VERTE CLAIRE AND ADRIEN POIRRIER	Brittany	1.5 hectares	80	High end herbal infusions.	7 years	1 FTE
AVELENN ALICE LESTEVEN AND OLIVIER GUILLEUX	Brittany	20 hectares	30	Essential oils, hydrosols, herbal oils, soap.	5 years	3 FTE
JARDIN DU CENTAURE DOMINIQUE AND HENDRIKJE LEPAGE	Massif Central	1 hectare	35 grown/ 35 wild harvested	Dried herb teas, herbal balms.	23 years	2 FTE
OUMA CATHERINE AND VINCENT SEGRETAIN	Auvergne	1 hectare	100 plants. Mostly grown, some wild harvested.	Dried herbs – teas	30 years	2.5 FTE
LA FERME DE LA QUINATIERE FREDDY RIVALT	Vienne	1 hectare	60	Dried herbs – teas and culinary herbs	3 years	1 FTE
VALYHERBA VALERIE MEO	Drôme	0.4 hectares of herb cultivation	60	Dried herbal teas, syrups, hydrosols, essential oils.	14 years	1 FTE
LA FERME DU BIEN-ETRE CLEMENT URION, NICOLAS THOMAS AND JEFFERSON MENY	Les Vosges	1.5 hectares	50	Essential oils, Hydrosols, Massage oils, herbal oils, herbal balms, herbal infusions, bath salts, face oils, lotions.	30 years	6 FTE

A visit also took place to the sales and manufacturing site of Sicarrapam. Sicarrapam is an agricultural cooperative of medicinal and aromatic plant producers based in Aurvergne with around 50 members who collaborate in selling and processing medicinal plants to the French and international markets. Along with this, was a tour of the farm of one of their members La Belle Plantes.

ii) Motivation, vision and values

“Our motivation is a way of life and a passion for herbs” Catherine, OuMa.

Motivation

The primary motivation for five of the seven herb farmers was the way of life that running a small herb farm would bring. For two of the couples running a herb farm, the lifestyle enabled them to raise their children together without having to go to work elsewhere. For other farmers, herb farming brought a sense of freedom, of being able to carry out work that they feel passionate about, the desire for a more simple life or being able to work with their hands. Other motivations included an interest in agriculture and the technical side of herb processing and a determination to prove that it is possible to make a living from a small farm of just one hectare.

“...the job brings me the opportunity to get paid for something I love doing. It’s not a common job and it’s the sensitivity of the sensory aspect when I am carrying out my work. I often get very strong scents from the plant” Oliver, Avelenn.

The motivation of the farmers was highly important to the determination of the herb farmers and enabled them to overcome the more difficult aspects of running a small herb farm, such as the long work hours, often limited incomes and long start-up periods before the businesses became financially viable.

Vision

Few of the herb farmers interviewed had a detailed vision of exactly what they wanted their farms to be like when they started out. For some, such as Dominique and Dirk at Le Jardin de Centaure they just wanted to have a go at making money for farming. For other farmers, they had specific focus in mind such as running a small, financially viable business selling dried herbs that paid one person (La Ferme de la Quinatiere), setting up a farm like one that they had already worked at (OuMa) or running a business that focussed on selling gastronomic infusions (L’Amante, Verte). Often the process of developing the farm businesses was an organic one, which involved learning along the way.

Values

A value shared by all the farmers who answered the question, was of having a positive impact on the environment. These values included environmental sustainability, ecological concern and building the soil.

A focus on local supply chains was also an important value for two of the farms that chose only to sell their products within a certain proximity to their farm. For Avelenn, the creation of jobs locally was also important and they were choosing to do this through using processing techniques that required people to work with their hands rather than using machines:

“we want to sell our products locally. This is a system that needs people, we don’t want to use machines for everything... we would prefer to employ someone instead of using a machine, we enjoy the human aspects of the process” Olivier, Avelenn.

iii) Growing/ Harvesting/ Drying/ Processing

Crop Selection and Crop Planning

To a large extent, it is the land, climate and marketplace that dictate crop selection. The general theme from the interviews with French herb farmers was that they didn't have a clear vision of what they were going to produce they just knew they wanted to be herb farmers. After many trials and experiments they arrived at their own niche.

Be flexible

Catherine and Vincent at OuMa have a sandy soil that suits most aromatic plants.

“We produce things initially for the market, we then test new products as our customer base increases.”

Producing over a 100 medicinal herb plants can be very complex, so OuMa do not have a strict system. Basic crop rotation and locating crops where they will thrive are basic principles to follow but you often have to respond to the conditions at the time and your market.

Be patient

Claire and Adrien at L'Amante Verte experimented for two years to find out what grew well on the site and to determine what products they could put together. After five years they are still trying to find new plants for their products. The dedication to this creative process certainly pays off, Claire and Adrien have created a unique product and brand.

When soil conditions are not ideal

Freddy at La Ferme de la Quinatiere plans every winter but the weather effects things a lot so he has to remain flexible. He works on a clay soil which is still wet in the spring, this has affected the production of perennial crops such as Rosemary, Lavender and Thyme. Freddy focused on plants that do grow well in his soil such as oregano, mint and most flowering plants that are used in high value tisanes. He has found a market for his infusions and dried culinary herbs. This was a key experience as medicinal herb plants are generally produced on more open textured or sandy soils.

Data is important

Clement at Le Ferme du Bien Etre uses the sales that determine how much is planted, the farm existed before the current owner took it on, the quantity each year is pre-determined and informed by the amount sold in the shop, a safety factor of 25% is added. For new growers basing crop selection on previous data is very difficult.

Olivier at Avelenn gathered data from local retailers, he bases the area of crops grown on the percentage of products sold in shops.

Be practical

“We have to be very practical about our choices in crops, we choose crops that grow well and develop products that will make good sales” Olivier Avelenn

Cultivation methods

It is a requirement in France that each farmer is to be qualified by an educational institution, whether horticultural or farming to operate and receive government funding as an organic farmer. A noticeable similarity of approach in production and cultivation practices was observed in most but not all farm visits. There was a pattern of green manure being ploughed in, followed by harrowing to prepare planting areas. This was followed with weeding using a steerage hoe, spring tines or goose feet after crop establishment.

Avelenn

Farm on 20 hectares. This is on the larger end of small scale. They use various tractor implements. Initial ploughing (usually of a green manure crop), harrowing to prepare ground for direct seeding or transplanting, and then spring tine and finger weeding after planting. Pre harvest there was one week of hand weeding by a group of paid seasonal employees and interns.

On the whole this was an efficient weeding strategy for the scale of the farm, however, it relied on good crop establishment and timing. If weeds were allowed to establish then the tractor implements were not so effective. Also, there are a few crops that the tractor implements were not useful, generally low growing crops with sprawling habits, such as roman chamomile. These crops required meticulous hand weeding which is not economically viable on this scale.

Le Ferme Bien Etre

Use similar practices as Avelenn but with scaled down machinery as they produce on 3ha. The steerage hoe was well used. Le Ferme du Bien Etre farmed were on a much smaller scale which allowed hand hoeing of certain crops.

The economics are always the main factor in decision making on a farm. The farm makes their own products which they can sell for a retail price in a remarkably busy shop, this bring in enough income for them to focus on human scale methods.

L'Amante Verte and Le Ferme du Quinatiere

For both farms, soil type is a key influence in soil cultivation practices for these two farms. Both in the Brittany area Adrien (L'Amante Verte) and Freddy (La Ferme du Quinatiere) found that the plough-based approach was damaging to their soils. They were suffering compaction and crusts which made it difficult to reliably produce many of the common herbs in the lamiaceae family. Both farmers have recognized the need to keep the soil surface covered at all times with organic mulches and to convert to a minimum till system. Adrien and Freddy both stressed the need to build good hummus rich organic matter to improve the structure of their clay soil.

"Medicinal herb plants do not need a high level of fertility to thrive but will certainly benefit from good structure." Freddy, Le Ferme du Quinatiere

Adrien is using miscanthus straw as a mulch, this is reducing the weed burden retaining moisture and building carbon content in the soil.

Freddy is using spent mushroom compost from a local mushroom farm. Municipal compost is also an option, but the quality can vary and sometimes contains litter and plastics.

OuMa

Staying true to their handcrafted ways, they have use hand tools and animal traction as a form of cultivation and weed control. Vincent has been training two donkeys for two years. The donkeys pull tines and harrow through the soil to prepare planting space and weed between rows of plants, this

make the weed management much more efficient as the hand weeding is reduced to intra row (between plants) weeding until the crop is established.

The obvious benefit here is sustainability, there is no dependence on fossil fuels in any of OuMa's farming methods. Along with this, Catherine and Vincent believe that hand methods respect the nature of the plants. The animals also have a less compacting impact on the land.

The cost here is actually caring for the animals and having enough land for the animals to graze. The OuMa garden was very clean in terms of weed management. It is also worth noting that the garden was parceled off into smaller plots by hedges, the plots get the benefit of wind protection, biodiversity and maybe protection from wind dispersed weed seeds.

Weed control

This is a key factor for the viability of a small scale organic herb farm. Every farm stressed the importance of weed control. It may take more time in the spring, but you benefit from a more efficient harvest. If machinery is used to harvest, then it is imperative that the crop is completely free of weeds because too many unwanted plants can adulterate the final product. Although weed management is essential, herb farmers have to be careful not to spend too much time weeding because it is a low value task, too much time spent on weeding reduces the value of the crop.

Three main methods of efficient weed control were witnessed on the farms.

Tractor implements

Tine weeder - used at the cotyledon stage to create stale seed bed



Steerage Hoe - used when crop is small on multi row beds



Spring tines (below) or goose feet - used for larger crops on single row planting.



Procuring farm machinery

For new entrants with low start up budgets, farm machinery can be prohibitively expensive. Small scale organic producers in France have recognised this as a problem, so they have created a network of designers and mechanics to adapt, build and design appropriate machinery from recycled materials or disused tools.

"L'Atelier Paysan is a cooperative (SCIC SARL). We support farmers in the design and manufacture of machines and buildings adapted to peasant agroecology. By re-mobilizing producers on technical choices around farm working tools, we collectively regain technical sovereignty, autonomy through the reappropriation of knowledge and know-how." (L'Atelier Paysan, 2020)

Hand Weeding

Hoeing - hoes are used when the plants are young. More hoeing in the spring when crops are small and there is lots of bare ground around the plants. For hand hoeing to be a viable strategy, farm workers have to be quick and proficient. On any landbase above one hectare hoeing is reserved for areas a tractor implements miss, such as between plants.

Other hand tools - A French company Terratek sell a whole range of extremely useful hand tools designed for small scale organic producers. Examples being the wheel hoe and finger tine rake. Freddy at La Ferme de la Quinatiere made an investment in these tools, if these tools are used at the correct stage of weed development it can reduce weeding time dramatically. Freddy is currently managing one hectare of land as a single individual, much of his processes are by hand so anything that improves the efficiency of his weed management increases the viability of his business.

Plastic mulch

Mypex or woven polymer plastics for longer living crops i.e. anything that stays in the ground for more than one season, Le Ferme du Bien Etre use plastic mulch (below). The benefits far outweigh the costs here as it saves lots of labour time.



Biodegradable mulch (below)- Another key finding here was a decomposable plastic mulch used by Alexander at Le Belle Plantes. This was designed for perennial crops, remains usable for at least two years but still breaks down in the soil.



Soil Amendments

All of the herb farmers in France were organic and cited soil conservation as one of their highest values. Green manures were used as standard, local animal manure and carbon material such as straw and wood chip. OuMa use alpaca manure from their alpaca wool business and Le Jardin du Centaure use hay from their own fields

Propagation

All of the farms in France propagated their own plants by seed. Occasionally plants were bought in from other herb growers, where a specialist plant was required. For example, Avelenn bought in specific varieties Lavender for distillation which were known to produce high yields of essential oils. In addition, when growing at scale, it is much more efficient buy in plants.

Harvesting

The ability to harvest in a way that maintains the quality of the crop without taking too much time to harvest. The harvesting techniques separate small scale producers who can charge a premium for their product and large scale producers who due to the extreme mechanisation lose certain qualities in the plant.

Harvesting Methods

Hand Harvesting

Speed and proficiency are essential to hand harvesting. At Le Jardin du Centaure Djirk is very quick and efficient in her movements.



Above: Hand harvesting flowers at Le Jardin du Centaure

Jardin du Centaure demonstrated the importance of working quickly. Small scale agriculture is very labour intensive therefore being able to shave time off tasks by being quick at what you do not only

increases the value of the crop but also improves quality of life as it creates more time for other things.

Human scale mechanisation

Freddy at La Ferme de la Quinatiere uses a Terratek greens harvester RPJ1200 which is six times faster than harvesting with hand tools. Although it does require a weed free bed, the greens harvester is a game changer when it comes to the viability of small scale organic herb farming.



Above: Harvesting lemon balm with a Terratek greens harvester at Le Ferme de la Quinatiere

Adrien at L'Amante Verte uses the Tutillo to harvest flowers. Quality flower harvesting is time consuming and requires a lot of human energy, the Tutillo speeds the process up by 25% and saves energy for other tasks. The Tutillo was originally purchased when Adrien injured his knee, the injury prevented him from doing his usual work on the farm, the tool allowed him to transplant and weed crops too.



Above: The Tutillo in action at L'Amante Verte

Processing

Yield Data

The general ballpark figure for the amount of dried herbs a farmer could expect in France was 250kg per hectare. However, this did include dried flowers, so this figure could be higher if it were leaf or roots. Many of the farmers relied on sales of high quality infusions, which are far superior compared to similar products that used imported dry herbs.

Drying

Two different drying methods were observed on the farms in France. self-built insulated rooms with dehumidifiers and specialised warm air systems using air condensing units as a heat source.

Self-build drying room with dehumidifier



Above: Herb dryer unit at La Ferme de la Quinatiere

Insulated rooms with removable trays made from untreated wood and mosquito netting. Drying herbs using this system can take up to one week. Cost of dehumidifier is 800 euros with a lifespan of two years. Dominique from Jardin du Centaure has two dehumidifiers running in case one was to break down.

The advantages of this system:

- Relatively cheap to set up, good option for new entrants with a low start up budget
- Easy to scale up when necessary
- Easy to replace the parts

Dis-advantages

- Longer to dry herbs than other high-tech options
- Not so useful in winter or when conditions are wet
- Requires close monitoring of humidity and temperature

Use of warm air and air condenser unit.

L'Amante Verte bought a bespoke Austrian built herb dryer. At a cost 20,000 euro's, it dries all material in 24-48 hours. A similar unit was used at Le Ferme du Bien Etre.



Above: Herb dryer unit at L'Amante Verte

This system goes a step further as it moves warm air around the drying rooms as well as removing moisture from air.

Advantages

- Possible to dry some herbs in 24 hours
- Can still function independently of outdoor conditions
- Quality end product, it can maintain constant ideal drying conditions

Disadvantages

- Higher cost than the above, at 20,000 euro's a herb farmer would need to be using it most of the season to justify the cost
- Breakdown – if a problem were to occur it requires specialist knowledge to repair.

Essential oils and Hydrolats

Traditional and Modern

The obvious trade off here is cost and scalability.

Avelenn use a large distiller costing 20,000 euros and above. It can produce a minimum of 12,000 euros worth of essential oils per month in sales.



Above: Distillation unit used at Avelenn

Valerie at Valyherba uses an alembic distiller. At a potential cost of 500 euro's second hand is a cost-effective way of starting and developing products but is limited in scalability.



Above: Valerie with her Alembic distiller

iv) Training, experience and education.

The interviews demonstrated that all the herb farmers in France had a range of experiences that contributed to the successful development of their businesses.

Work experience

Two of the farmers interviewed had gained experience working in herb farming prior to starting their farms through employment on a larger herb farm. They found that this work not only gave them the experience of working in the industry, but also provided vital contacts who could offer advice, as well as access to second hand specialised herb farming machinery being sold by these businesses. Another of the farmers had previous experience in broad acre production before setting up their own small farm.

Internships

All but one of the farmers interviewed had undertaken one or more internships at another herb farm before starting their business. Herb farm internships are common in France and form part of the one-year agricultural training.

Training

Most herb farmers visited had completed an agricultural diploma before setting up their herb farm. These courses lasted between eight months and one year and were designed to prepare the students for setting up a farm. These agricultural diplomas incorporated specialised modules for herb farming and a number of schools (mainly in the south of France) ran an agriculture diploma focused specifically on the production of herbs. These courses included one or more internships on a pre-existing herb farm.

Once the agricultural diploma was completed, the graduates were entitled to apply for local government grants to set up their farm business.

Due to the popularity of herb farming in France, there are lots of independently run courses available for herb farmers to develop their farming and herb processing skills. Some of the farmers has attended short courses to develop their farming skills in specific areas, such as drying herbs, distillation and rose production. Longer courses included herbal medicine training which took up to two years a one-year training at a school of aromatic plants.

Herb farm visits

Two farmers also choose to arrange visits to other herb farmers across the country to gain insight into the industry and the options available. This was invaluable experience in preparing to run a new herb farm business:

“I visited 15 herb farms that produced aromatic herbs. This is the most important part of my experience; I learnt a bit from each farm I saw. You can always learn things even if the system is far removed from what you wish to do it’s always interesting” Olivier, Avelenn.

Non-farming experience

Some farmers had skills from past experiences that they could draw from when running a herb farm business. Other experience and training, that was relevant to running a successful herb farm business was previous experience running a business, communication skills through a previous career in journalism and a master’s degree in social entrepreneurship.

v) Legal factors, regulations and land

Business structures

Four of the seven farms visited were registered as a 'Groupement Agricole d'Exploitation en Communa' (GAEC)

A GAEC is a unique type of legal structure for farm businesses, designed for an association of several farmers. The farmers involved, pool their land, labour and capital and share the costs and profits of their farming activities. One farmer explained that this type of structure also has certain advantages over other legal entities for small farmers such as financial assistance.

Other legal structures of the farms included being a registered company and an unregistered business.

Regulations

Obligatory regulations that the French herb farmers must follow to produce and sell herbal products include:

- EU cosmetics licencing - licence being required for each individual product sold at the cost of 140 – 600 euros per product.
- Food hygiene regulations
- French law passed in 1941 restricting the sale of herbs to a list of 148 herbs. It is illegal for herb growers to produce and sell any plants falling outside this list.

Many of the herb farmers described the difficulty that the regulations added to running a successful herb farm. In particular, the law restricting the sale of herbs to 148 plants limited what the farmers could grow and sell when there was consumer demand for other products. Some of the farmers chose to grow and sell herbs outside of the list although they knew it was a risk to their business.

The high cost of the cosmetics licencing was also a prohibitive factor in developing a large range of cosmetics for sale from the farm.

A number of support organisations exist in France to offer support to small scale farmers in navigating the regulations and lobbying the government to make changes to the laws. These include: Fédération des Paysan-ne-s Herboristes (Federation of Herbalist Farmers), Sydicat SIMPLES (Professional syndicat for producers of medicinal and aromatic plants) and Paysan Cosmetique (a federation for farmers producing natural cosmetics). See below information.

Certification

All the farms visited were registered organic and had a set of regulations to abide by for this certification. On the whole, farmers were happy with the organic regulations due to the environmental standards that were enforced and the benefits that organic certification gave when selling their products.

Record keeping

Record keeping was required by all farms to demonstrate their adherence to regulations, good manufacturing and ensure tractability of their products.

Land

Of the farms visited in France, two of the farms were owned by the farmers and five were rented.

The agricultural rental agreements in France are issued for a period of nine years, during which the price of the rental agreement cannot increase beyond a certain level. This type of agreement gives security to the farmers, enabling certainty on which they can build their business. This type of long term agreement is especially valuable for herb farms who grow perennial crops that may take several years in the ground before they can be harvested. Of the tenants that were renting two had a private rental agreement and the other three were renting land through Foncière Terre de Liens.

This is a social investment company describes itself as “a social and solidarity economy company that buys farms to stop the disappearance of agricultural land and reduce the difficulties of access to agricultural land. These places are then rented out to farmers who start their activity. To acquire these farms, La Foncière relies on its capital, made up of the savings of citizens who have chosen to invest in solidarity projects” (Terre de Liens, 2020)

Foncière Terre de Liens is one of the 3 pillars of the Terre de Liens movement which began in 2003 with the aim of halting the disappearance of land and facilitating access to agricultural land for new farmers. The organisation finds shareholders to invest in buying farmland which is then rented out to new farmers. Across France, Foncière Terre de Liens now owns 200 farms, covering 1300 hectares of land.

This model enables new entrant farmers to access land easily with a secure long term tenancy agreement. All of the farmers renting under this agreement were new entrants to herb farming and reported being ‘very happy’ with their rental agreements.

vi) Farm finances

Start-up costs

The small herb farms that took part in the research had start-up costs ranging from €30,000 – €535,000. The farms with the higher costs were larger farms and those with more farm machinery and processing equipment. These start-up costs were usually financed by a combination of personal or family finances, bank loans and agricultural subsidies or loans.

Profitability

The question of disclosing detailed financial information was a sensitive area for some of the farms that took part in the research, with several farms not wanting to disclose these figures publicly.

Below is a brief summary of the profitability of the farms that were willing to share part or all of this information.

Profitability of new herb farm businesses

L'Amante Verte had been running for a business for seven years and were in the seventh year, at the stage of becoming profitable. Their current annual revenue was €35,000 per year, with outgoings estimated at €30,000 per year.

Avelenn had been running their herb farm business for five years and were finding it to be taking longer than they had expected for their business to become profitable. Their outgoings were fairly high at €124,000 per year and although they were taking enough revenue to cover these costs, they were still unable to pay themselves.

La Ferme de la Quinatiere after 3 years had an annual revenue of €20,000 from herb production. The overheads were not disclosed as they were difficult to calculate due to being part of a bigger business with vegetable growers where costs were shared by all. The aim of the herb grower was to create an annual revenue €30,000 per year to support one full time farmer.

Start-up herb farms found it was taking a long time to reach profitability, often longer than had been anticipated in their business plans.

Developed herb farm businesses

Jardin du Centaure had a revenue of €60,000 per year and overheads of €20,000, making a profit of €40,000 which they found adequate to support their family and lifestyle.

Ouma did not want their finances publicly disclosed that they were making an income from the business from which they could cover all overheads, sustain themselves and employ a part time member of staff.

Valyherba had a revenue €20000 per year, which paid one part time worker.

For most herb farms that had been running for several years, profits remained fairly low. However, these businesses were still viable for those running them as it fitted well with their lifestyle choices.

An exception in the farms researched was Le Ferme du Bien Etre which, in 2018, had a revenue of €373,000 and outgoings (including associate salaries) of €319,000.

Le Ferme du Bien Etre -Farm Finances in Focus



Le Ferme du Bien Etre is based in Les Vosges region of France.

It is a small herb farm run on just 3 hectares with a rented shop and processing buildings. The farm employ six full time members of staff including the three farming associates, Clement, Jeff and Nicolas who manage the business. The farm began 1988 and was taken over in 2012 by Clement when the previous owner retired. In comparison with other small herb farms, the revenue from the farm is comparatively high. In 2018, the farm had an income of 373, 800 euros, of which 354,000 euros came from sale of products processed directly from plants grown on the 3 hectare farm.

The growing is carefully managed on the farm and the perennial herb crops are often harvested multiple times during the year to maximise productivity. Nothing goes to waste. The first harvest with the best leaves or flowers is carefully dried to produce high quality artisan infusions and the second harvest is transformed into essential oils, hydrosols, herbal oils and cosmetic products. These products are all sold directly from their shop.

Profitability is a strong focus of the farmers that run Le Ferme du Bien Etre and they were happy to share their accounts for this report to inspire other herb farmers.

Farming associate Clemont explained their motivation:

“We want to show that you can be a small farm, have good products and make them by hand. By existing as a profitable business and being successful in what you do, you are demonstrating to people that things can be made by hand and there can be a connection with the plants. Many small herb producers are ashamed of making money, we want to break that stereotype, and show that our business is one that works.”

The shop is based on the main road to Gerardmer a tourist hotspot in Les Vosges and attracts visitors throughout the year. Having such a good location for their shop is one of the keys to their success as it is busy throughout the year. The visitors are able to watch the distillation process through a glass window to the distillation room as they shop and at the front of the shop is a small, well-kept garden with a collection of plant that are grown on the farm.

The main cost of the farm is the labour cost. The materials are also a substantial cost for the business. In order of the highest cost first, these include packaging, other product ingredients, gas for distillation and lastly the seeds and plants for the growing operation.

The table below shows a summary of the farm's incomings and outgoings between 2016 and 2018

	2018	2017	2016
Total Income	€373,000	€334,000	€299,000
Sale of products	€354,500	€309,000	€291,000
Other income	€18,500	€25,000	€8,000
Total outgoings	€316,000	€273,000	€245,000
Operational costs	€3,000	€7,000	€3,000
Materials	€65,000	€62,500	€61,000
Rent	€16,000	€15,500	€15,500
Taxes	€1,500	€1,500	€1,500
Labour costs (including associates)	€175,000	€130,500	€115,000
Other costs			
Business profit	€57,000	€61,000	€54,000
Profit margin	14%	18%	19%

* All figures are rounded to the nearest 500

vii) Sales and marketing

Products sold

All the small farms that took part in the research sold value added products. The products sold ranged from herbal infusions, culinary herbs, essential oils, hydrosols, herbal oils and cosmetics. Several farms chose to sell a combination of these.

All the products sold were high quality, artisan products which set them apart from other herbal products. There was often a focus on retaining the aromatic properties of the plants throughout the processing.

Below: A range of products from French herb farms



Customers

For five of the seven small herb farms, the focus was on local customers who accessed the products directly from the farm shop or from local shops, which included local supermarkets and organic shops. Two of the herb farms sold their product throughout France, and two had international customers.

A specific customer segment known to be buying products by the farms was women between the ages of 25-50. Other customers included restaurants, professional buyers and tourists.

Promotion

A range of promotional strategies were used by the farms to market their products. These included, Instagram, direct marketing to chefs, local shops or members of the public, promotion of their farms at organic trade shows and at events such as farmer's markets and open days.

A number of the farmers interviewed commented on the increase in demand across the whole of France for local organic produce and felt that simply promoting themselves as local and organic was enough to attract customers.

Sales and distribution methods

The sales methods of the farms varied depending upon the product sold and their individual context. The majority of farms chose to sell their products directly to shops, mainly organic shops and local supermarkets.

L'Amante Verte, chose to sell their infusions through a tea company.

Le Ferme du Bien Etre which sold 80% of their products through their own shop.

In addition to sales through shops four of the seven farms sold their products direct to customers online but this only contributed to a small proportion of overall sales.

Six of the seven small farms distributed their products to their customers themselves either by delivering themselves or through courier services. L'Amante Verte, sold their infusions through a tea company who did all the work of distributing the products to the customers for them. As there was only one person working full time on the farm, this worked for them as they did not have the capacity to sell direct to customers.

viii) Support organisations

Several farmers were members of national organisations that offered support to small scale herb farmers in various ways.

Le Syndicat de Simples

SIMPLES is an acronym for Syndicat Inter-Massifs pour la Production et L'Economie des Simples.

It is a professional union for herb producers that has been running since 1982. The union was set up initially for producers in mountain areas, but it now spans across several regions of France. It has over 100 herb producer members.

The union aims to:

- contribute to the maintenance of farmers in mountain areas and marginalized territories,
- promote the production in agrobiography and the marketing of quality aromatic and medicinal plants,
- obtain the recognition of a professional status of picker of wild plants.
- safeguard and enhance the traditional uses, knowledge and know-how relating to aromatic and medicinal plants by developing our activity and our networks and by offering a wide audience workshops and introductory courses in botany or herbalism,
- participate, as holders of a body of knowledge on medicinal plants, in the debate on the recognition of a new diploma of herbalist, which would be that of farmer-herbalist.
- inform and educate a large public about environmental protection and alternative agricultural production approaches (agroecology, biodynamics, sustainable harvesting, etc.) as well as alternative health and lifestyle approaches (wild food, phytotherapy...),
- promote exchanges and experiences with other producers of aromatic and medicinal plants around the world.

(SIMPLES, 2020)

Although it was not possible to meet with someone from the union at the time of the visit, they supported the research by contacting members across France to invite them to take part.

Three of the farms were involved with SIMPLES, two as sympathisers and one as a professional member.

Valerie of Valyherba explained that she found the knowledge within the union to be a great resource for information related to all aspects of herb farming. Whenever she had a question, she could share it with the other members of the union and get the answers she needed.

Fédération des Paysan-ne-s Herboristes

Two of the farms visited were members of the Federation of Herbalist Farmers.

The herb farmers in France are placed under legal restriction, with the law that limits them to producing and selling just 148 plants and the fact that it is illegal for herb farmers to comment on the therapeutic properties of the plants. Under this law, only a qualified pharmacist can offer information about the medicinal benefits of herbs and sell herbs outside of this list.

The aim of the federation is to promote the recognition of the profession of 'herbalist farmer' and to enable him to have the means to fully practice his profession, namely:

- The cultivation, picking and processing of food, aromatic, cosmetic, medicinal and tinctorial plants.
- The direct or short circuit marketing of products developed on the farm.
- Information and possibly advice to users on traditional properties and uses, including precautions.

(Paysans Herboristes, 2020)

The federation is involved in political lobbying of the government to encourage changes to the law and regulations in France that would be of benefit to small herb farmers who sell their products directly to the public.

Terre de Liens

As mentioned above, three of the seven herb farms visited rented their land through Terre de Liens. Through the support of Terre de Liens these new entrant farmers were able to access fairly priced rental farms with secure rental agreements. This organisation was instrumental in providing access to farmland which may have not otherwise been available.

Other groups that farmers found useful included, local producer's groups, local/ regional herb grower's groups, wild harvester groups and agricultural unions for small farmers.

ix) Social and environmental benefits

Social benefits

Outside of their farming and sales activities, some of the farms involved a wider range of people in their activities. Three of the seven farms hosted visitors to the farms and offered a range of activities such as garden tours, open days and student tours. At L'Amante Verte the aim from the start had been to open the farm to members of the community by running a café with a library space as part of the farm.

All but one of the farms also hosted one or more interns on the farm per year. Usually students of the year-long agricultural diploma.

Environmental benefits

In terms of motivation, the environmental benefits of herb farming were amongst the main reasons why the herb farmers had entered the profession. None of the herb farms visited had directly measured their environmental impact although two farms reported that they had seen increased biodiversity on their farms. Two farms had also planted new hedgerows.

Co-operative working

A short visit was undertaken to a the co-operative SICARAPPAM. The co-operative is a collaboration of 50 herb producers and wild collectors. The co-operative offered opportunities for small scale producers and wild collectors of aromatic and medicinal plants access to the international market.

Alexander Dugout farmer at La Belle Plantes and a member of the co-operative explained that the co-operative pays for the plants by the kilo and takes care of the processing and sales. This allows the farmers to focus on the production of crops.

Members of the co-op also had access to a wide range of processing machinery for processing and grading their plant material that they would not otherwise have had access to as individual growers.

The formation of farmer's co-operatives is commonplace across France as a way for small scale farmers to sell their goods directly to a wholesale market. Due to the limitations of the research visit it was difficult to access these co-operatives and farmers that sell to them. This short visit gave an insight into the benefits of co-operative working between farmers and how it offers a good solution for small scale herb farmers who want to focus on production and do not want to process their crops.

x) Key findings from France

Focus on high end products – On a small scale, herb farmers must focus on processing to add more value to their product. High quality artisan products sold to the retail market, obtain the highest return. A labour intensive approach sets them apart from larger scale producers who cannot compete with the quality of the end product.

Being responsive – A key finding in France was that there are no ‘off the shelf’ models to herb farming. Trials and tests are important in creating your own niche as is knowledge of your market and running with the things that work.

Determination – It can take up to five years to break even which is longer than other farming businesses to break even. It’s often the determination and creativity that make it work in the long term.

Personal contexts – Herb farming can be very profitable in the correct context but it’s not always the main drive. Herb farming can meet many other personal needs or lifestyles such as good family lives, being with nature, working with your hands or feeling that you are doing something worthwhile.

Role of co-operatives and associations – Improve access to land, finance tools and machinery and helps new herb farmers navigate complex regulations.

Structured Education – Internships and herb production diploma has led to an increase of new entrants into small scale herb farming.

Love and dedication – A love of what you do and respecting all aspects of the work is vital. There is an art to making good herbal products and the aesthetics of the end product is very fulfilling, however, organic small scale farming is labour intensive and you must be able to do whatever needs doing whenever it needs doing, it is not an easy ride and it requires many hours’ manual labour. You must be as dedicated to the everyday work as well as the end product.

Efficiency - Use of small scale machinery to reduce manual labour. Innovations in small scale farming have led to the use of appropriate machinery that reduces the labour time yet maintains quality.

5) Lessons from Australia

i) Summary of farm visits

The second phase of the research consisted of a 23-day period, three visits took place to herb farms, two visits to herbal manufacturers and one visit to a former herb farmer.

The table below briefly summarises the farms visited in the second part of the Fellowship:

FARM NAME	FARM LOCATION	SIZE OF FARM	NUMBER OF HERBS GROWN	PRODUCTS SOLD	LENGTH OF TIME IN OPERATION	NUMBER OF STAFF
MARLEEN'S HERBS RONALD AND MARLEEN VAN DE WINCKEL	Northern Tasmania	50 acres	150 herbs	Dried herbs, fresh plant tincture, gemmos.	In operation for 9 years in Tasmania	2.5FTE
BRONZEWING FARM GREG WHITTEN	Southern Tasmania	1 hectare	75 herbs	Dried herbs, herbal tinctures.	Time at current farm, 10 years. 25 years in operation.	4FTE
SOUTHERNLIGHT HERBS/ GREENHOOD FARM MIKE BROUWER AND NATALIE GREENWOOD	Timboon, Victoria	8 farms, 4-5 each at Greenhood Farm	60 herbs from network of 14 growers. Production from individual farms unknown.	Dried herbs	30 years	Unknown

The three herb farms in Australia were incredibly different in their approaches to herb farming.

Marleen's Herbs

Marleen's herb farm was on the larger side of the small scale herb farming and take a mechanised approach to producing and processing herbs. Their main products were dried herbs and fresh plant tinctures that were sold to manufacturers. Marleen's Herbs was run and owned by a Dutch family who had previously owned a herb farm in Holland prior to setting up their business in Tasmania.

Gould's Natural Medicine

Bronzewing herb farm was a small farm of 1 hectare. It had a unique business model as it was part of the business Althea Proprietary Limited that also ran Gould's Natural Medicine, a naturopathic pharmacy and shop in Hobart, the largest city in Tasmania. All the herbs produced on the farm were used solely for medicinal preparations sold within the pharmacy. The farm was run by Greg Whitten, experienced small scale herb farmer and author of 'The Herbal Harvest' a book published in 1997. The Herbal Harvest was written as a how to guide for small scale herb growers in Australia and across the world.

Southernlight Herbs

Southernlight Herbs started out as a herb farm set up by Greg Whitten that sold dried teas. After taking over the farm in 1990, the current owners, Mike and Natalie expanded the business by creating a network of herb growers to ensure a consistent supply of Australian dried herbs. Southernlight herbs currently works with a network of 14 growers who supply the business as well as producing a small quantity of less common herbs on their own herb farm in Malden, Victoria. Southernlight Herbs sells 120 dried herbs. 50% of which are Australian grown.

Training new herb growers is a key part of the work carried out by Southernlight Herbs. In order to expand their network of growers, they run regular workshops for and offer mentoring to any grower working with them.

Greenhood Organic Farm is a project set up by the owners of Southernlight Herbs. Launched in 2014, Greenhood Organic Farm consists of a centralised herb growing demonstration area and eight 4-5 acre plots. The original aim of the project was to provide eight families with the opportunity to develop and manage individual herb growing enterprises within a community. Southernlight Herbs would provide assistance via mentorship, workshops and grower contracts. Despite these intentions, Mike and Natalie had found the uptake on the plots to be slow and only one of the plot holders had got to the point of selling dried herbs to Southernlight herbs. Mike and Natalie maintained the farmed the demo area themselves and dried the products for sale my Southernlight herbs.

Other visits

Manufacturers

Visits took place to two Australian Herbal manufacturers, Mediherb and the Pharmaceutical Plant Company (PPC) who shared their experience of sourcing Australian grown herbs and working with Australian herb growers.

Other farm businesses

An interview was also carried out with the owner of Byron Bay Medicinal Herbs a business that had been growing and producing herbal products for 13 years. At the time of the visit, the business had recently ceased trading, but they shared their insights about herb farming.

ii) Motivation, vision and values

Motivation

The motivation of the herb farmers visited varied. Two of the farmers had started by growing vegetables and were looking to grow a different type of crop that could be produced on a small land base. The motivation to become a herb farmer came from the lifestyle it brought, being able to run a business together and have a family on the farm.

Vision

For Marleen's Herbs and Greg Whitten of Bronzewing, there was no clear vision of what they wanted to do. They wanted to farm, and the herb farming evolved from there. Marleen's Herbs knew that they wanted to be mechanised from the start. For Southernlight Herbs, their aim was to take over and expand an existing herb farm business.

Values

All the farmers wanted to farm organically. For Southernlight Herbs and Marleen's Herbs environmental sustainability was one of the main values. Southernlight Herbs wanted to reduce their impact by minimising packaging, using solar energy. Marleen's Herbs also used solar energy and had created their own innovative design of a solar tractor which was used to harvest the herb crops.

The main value of Bronzewing farm, as a part of Gould's Natural medicine was to provide affordable, high quality healthcare.

iii) Growing/ Harvesting/ Drying/ Processing

Crop Selection and Crop Planning

The herb farmers visited in Australia had been in the herb farming business for many decades so had data to draw upon when it came to crop planning and forecasting. They also sell products through other independent shops and manufacturers which gives them more information when deciding what and how much to produce, for example Ronald and Marleen (Marleen's Herbs) can speak to the suppliers a year before to work out the production targets, they can then use past production data to determine how much to produce with a safety factor to ensure they have a surplus.

At Marleen's herbs it all depends on scale, below a certain scale some crops are not viable to produce. Some crops may be high value per square meter but if you can only sell a small amount then it is not going to work. Whereas some crops maybe relatively low value but you may be able to sell lots of it.

“On a small scale it is best to process more, I don't like to process too much, I like to grow. I have more fun producing a good raw material for someone else to process.” Ronald, Marleen's Herbs.

Marleen's herbs produce an impressively wide range of crops to access the market, they balance high and low profit crops to suit their needs, but a wide range certainly helps them to access more customers. Ronald says he is always trying to get more market share, he doesn't believe they can improve yields per square meter or price, but they can sell more in the market.

Greg Whitten at Bronzewing farm can look at past sales from the pharmacy where they sell the products. The pharmacy also buy herbs from other suppliers so will produce items that are not easy to source or are of lower quality.

Key lesson: Data Collection

From years of collecting data on crop yields it has made it much easier for the experienced herb producer to plan the season ahead and meet their targets. Disciplined data collection and analysis help to make the correct decisions on what crops are viable to produce.

Cultivation Methods

Ronald at Marleen's Herbs, uses mechanisation wherever possible. Recently scaled up to 50 acres they can produce enough raw material to process and sell on to manufacturers. They wanted to produce on a large scale so needed the appropriate tools. The key factor to the success of Marleen's herbs is innovation, Ronald has bought lower cost secondhand materials and manufactured the tools and equipment the farm need.

“I wouldn't have survived if I couldn't innovate” Ronald Marleen's Herbs

Weed management takes up most of the time spent cultivating herbs. Although this is a mechanised system they still used hand hoes for weeding young crops in the spring. Like with any hand work it pays to be quick and proficient with the tools, each member of the Marleen's Herbs team is extremely hard working and skilled at each task. If a job like hoeing is taken lightly it can waste lots of time.

Ronald has also tried flame weeding, as early as possible in spring a 'false' seedbed is prepared to start the germination of weed seeds and enable the subsequent harrowing and weed burning. Flame weeding can be an extremely cost-effective weed control method if done correctly. Flaming is carried out on newly germinated weed seedlings; flaming can be done just before your crop has germinated for direct sown crops (known as pre-emergence flame weeding) or just before a crop is

planted. Either way it can save many hours in labour time and because there is no soil disturbance there is less subsequent weed seeds brought to the soil surface.

Ronald also uses a Terrateck Cultitrack tool carrier. This is a lighter tractor with a high clearance above the crop. It allows them to perform all weeding operations at any stage of crop development. No matter the scale, whether 1 acre or 50 the herb crop needs to be clean of weeds to avoid adulterating the product. In an organic 50-acre system efficient and precise weeding equipment is key.

Greg Whitten at Bronzewing farm on his 2 acre site uses a rotovator to prepare beds along with a broad fork to alleviate compaction where there is poor drainage. Hand hoes are used for weeding.

Soil Amendments

Marleen's herbs used implement an organic system based on green manures and small amounts of bought in animal manure.

Bronzewing farm make their own compost local hay, grass clippings local waste from poppy manufacturers and seaweed. At under a hectare in size it is viable for Bronzewing Farm make their own compost with the use of a tractor to turn the compost when needed.

Harvesting

Over decades of producing herbs Bronzewing farm and Marlene Herbs have both developed tools and equipment that suit the scale of their farm and the needs of the people. Both farmers again stressed the importance of an efficient yet careful harvest.

Small scale tool:

The catching Scythe used by Greg Whitten at Bronzewing farm



The catching scythe makes harvesting an area of 0.5 hectares feasible without mechanical harvesting which may not be cost effective on this scale. Greg has fitted a wire mesh which catches the herbs to his home-made scythes which are made from aluminum tubes, making them lighter to use. After each stroke of the scythe the herbs are placed on a sheet, when the sheet is full the herbs can be bundled together and carried.

Larger scale tools:

The Solar Harvesting Machine Roald van de Winckel. The harvesting machine could harvest in one hour what it would take 4 people half a day to harvest. A custom-made machine, again to suit the land and people. It has a cutter bar at the front followed by a conveyor belt which transports the herbs to the back of the machine where someone divides the harvest into large containers. When the containers are full, they can be taken straight to the processing rooms.

Processing

Processing on a larger scale for manufacturers

Again, much of the processing equipment at Marleen's Herbs has either been built or adapted for their own purposes. No pictures were taken of any of the processing equipment in order to respect the uniqueness and innovation of the business.

Drying:

3 drying floors are used, which work by forcing warm air through the herbs. The floor is raised and perforated because air is forced through the herbs they can be spread in relatively thick layers.

Advantages:

- Efficiency – can handle large volumes of herbs which can be moved with pitchforks

Disadvantages

- Needs turning regularly to obtain even drying.
- Crop needs to be clean when it goes into the dryer, any contaminants will go undetected

Smaller harvests are dried in a box-dryer. The box-dryer is also used to complement the floor drying of herbs; for example, St John's wort flowers and marshmallow, which often take a longer time before being completely dry. The drying air always passes through a solar-collector (400 m²) which minimizes the need for supplementary energy. The drying process is normally finished within 2 days. The drying temperature remains under 35 degrees Celsius in order to minimise the loss of active ingredients. Prior to drying, certain species such as echinacea, agrimony and viola are coarsely cut to reduce the time of drying. The normal cutting size is 2-6 mm. After sorting, cutting, and sieving the herbs are packed in paper bags each of which can contain 10 kg.

Extracting:

Marleen's Herbs are specialised in the preparation of fresh plant-extracts according to the guidelines of the German Homeo Pharmacopea (GHP). They can also provide extracts based on oil/glycerol or press juices according to customer's specifications. Techniques used are extraction by maceration, percolation and vacuum-distillation; separation by vacuum-filtration or centrifugation and concentration/standardisation by vacuum-distillation. Being a raw-material supplier of active

ingredients to the phytotherapeutic industry; the production facilities are adapted to the newest GMP rules and regulations.

Maceration:

After the plants are ready for further processing, they are cut to an optimal size best suited for that specific plant (extraction). Extraction liquid is added to the plant-pulp in stainless steel- or hdpe vessels. The extraction liquid generally consists of 50 to 80 %v/v ethanol, depending on the GHP guidelines. For the duration of several weeks the mixture is left to extract at room temperature (maceration) and is stirred regularly.

Pressing:

Finally the plant pulp is being pressed using a large hydraulic press. The tincture is approved based on the analysis of the dry matter content, specific mass and identity reactions. They only use ethyl alcohol of certified organic origin (NOP) and of pharmaceutical quality (96,4% v/v). Any water used is UV-treated.

Bronzewing farm – small scale processing

Drying:

Uses portable screens, the herbs spread in thin layers on the screens – solar heated air, air is heated by flowing through a solar collector outside the drying shed a dehumidifier is used to remove the moisture from the air.

Greg says that he has seen many producers of high-quality herbs that rely on systems based on portable screens along with air drying with solar heat gain. The advantages of this system are that it is low cost to run and set up and can still reliably produce a consistent high quality throughout the summer months.

Further advantages:

- Avoids bruising as there is no need to disturb the herbs after initially being spread on the moveable screen
- As someone spreads the herbs, they can remove any weeds
- Avoids heating and sweating, airflow around the herb helps prevent deterioration
- Easy and efficient – concurrent drying of several different crops
- Be started on a small scale then expanded gradually.

Disadvantages:

- Weather will affect the drying process, there may have to be a backup heat source.
- Smaller volumes of herbs than a system with constant temperature
- Relies on close surveillance and skill of an operator

According to Greg Whitten, an operation that produces 2500m² in leaf crops, 500m² in flowers and 1000m² in root crops will need around 200 screens of 940 x 1500mm if using ambient air with solar heat gain in summer and a good heated back up system for bad weather.



Above: Greg Whitten's herb dryer at Bronzewing Farm.

iv) Training, experience and education.

Work experience

All the herb farm businesses had some farming experience prior to running their farms. Either cattle farming, vegetable farming or working at an existing herb farm.

Training

Little formal training had been undertaken by the Australian farmers prior to starting the farm businesses. Ronald from Marleen's herbs had undertaken a short government run farm business course prior to setting up in Australia.

v) Legal factors, regulations and land

Business structures

Marleen's Herbs and Southernlight Herbs were registered as business partnerships. Althea Propriety the business running Bronzewing Farm was a company limited by shares with five shareholders.

Regulations

In Australia, all herb farmers had to follow health and safety regulations and food safety standards to produce herbs. To produce tinctures that were being sold as having active pharmaceutical properties, the Therapeutic Goods Act (TGA) applied to the farms and a licence was needed to grow medicinal herbs. The TGA licence cost 7,000 dollars per year and this licence is held by Marleen's Herbs to sell their fresh plant tinctures.

The TGA states that a licence must be held to sell herbal tinctures, there is however a loophole in the regulation for qualified practitioners e.g. naturopaths and herbalists, who are exempt from requiring a TGA licence to sell them. As the herbal tinctures produced on Bronzewing farm were sold within the same business by qualified naturopaths at Gould's Natural Medicine, this mitigated the need for the farm to buy the TGA licence. At such a high cost, it would have been difficult for such a small farm to meet the licence fee and is a prohibitive factor for new herb growers in the country.

Certification

All farms visited were certified as organic. They viewed this as beneficial, as it gave a good standard of guidelines to follow and being certified as organic made it easier to sell their products.

Record keeping

All farms were required to keep records for processing

Land

All the farmers interviewed in Australia owned their own farms.

vi) Farm finances

Start-up costs

All the farm businesses visited in Australia had been in operation for a long time and were unsure of their initial start-up costs.

Profitability

Some of the businesses visited chose not to or were unable to share the profitability of their farm businesses.

Southernlight herbs grew a small portion of the herbs that were sold, they focused on herbs that were needed in small quantities, the majority coming from other herb growers within their network or imports so their farm activities were not considered to generate a profit for the business.

Bronzewing Herb Farm was integrated into the overall business that ran Gould's Natural Medicine. As the sales of the herbs from the farm were integrated into the overall business which made a profit. No analysis had been undertaken in the business to assess whether the overheads for farming of the herbs were directly covered by these activities but the quality of the products. However, the quality of the products gave the business a unique selling point and increased the therapeutic value of the products sold and this was highly valued within the business.

Marleen's herbs were happy to share their account summary from the previous year for the report, an annual turnover of \$400,000, outgoings of \$290,000 with a profit of \$110,00.

vii) Sales and marketing

Products sold

Each of the herb farm businesses had developed their own niche within the market.

Southernlight Herbs focused solely on the dried herb market. Marleen's Herbs produced dried herbs and specialist herbal extracts such as fresh plant tinctures and Gemmos. Bronzewing Herb Farm produced dried herbs, dried plant tinctures and glycerites exclusively for sale in Gould's Natural Medicine.

Sales and distribution methods

The sales and distribution methods of the farms depend upon their customer base.

Southernlight Herbs sell dried herbs directly to professional therapists as well as to members of the public through sales to health food and wholefood stores, food co-ops, cafes and food stores across Australia, distributed by courier.

Bronzewing Herb Farm sell only through the Gould's Natural Medicine shop and naturopathic pharmacy. The products are delivered directly to Gould's from the farm.

Marleen's Herbs sell their products wholesale to Australian and European herbal manufacturers and deliver using a courier. Australian herbal manufacturers that Marleen's herbs sell to include Integria and the Pharmaceutical Plant Company. They also supply Southernlight Herbs.

Promotion

The promotional strategies of each farm varied. Southernlight herbs used Facebook as their main form of promotion, Marleen's Herbs promoted themselves by approaching herbal manufacturers directly and Bronzewing Herb Farm, selling their products at Gould's Natural Medicine found that their business with a well-established high street store needed very little promotion.

viii) Social and environmental benefits

Social benefits

None of the herb farms visited were currently open to the general public. Marleen's Herbs had started to work with local schools to provide farm tours and educational visits.

All the farms were offering opportunities for others to learn about herb farming. Marleen's herbs offered internships to agricultural students and Bronzewing Herb Farm offered herb growing internships and ran internships for naturopathic students who worked in the tincture processing area at the farm. Southernlight Herbs run regular herb growing workshops for new growers to find out more about herb growing and offer opportunities for growers to join their herb growers' network.

Environmental benefits

The environmental benefits of the farms had not been measured in any way, although two of the farms had taken measures to improve their farms. Southernlight Herbs had reduced the size of their Malden Herb farm by 25% to allow for conservation and Marleen's Herbs had planted lots of trees, to create shelterbelts and habitats for animals.

ix) Herb Growers Network – Model of Southernlight Herbs

The business model of Southernlight Herbs was more than just running a single herb farm. To develop the herb farm business that they bought in 1990, Mike and Natalie of Southernlight Herbs decided that to grow the business they needed a consistent supply of herbs and they went about this by developing a herb growers network that operated across Australia. Southernlight Herbs want to prioritise Australian grown herbs for both the quality of the plant, which is noticeably different from that of imported herbs and to minimise the carbon footprint of the business and to reduce reliance on imports.

They did this by running regular workshops for new growers and offering mentoring for growers who wanted to become part of their network. In the workshops new growers learn the basics of herb growing and facts and figures around the productivity of each crop. When working with Australian Growers, Southernlight Herbs pay an average of \$35 per kilo, whereas imported herbs cost an average of \$24 per kilo, this higher price enables the growers to earn a reasonable income.

For herb farmers that want to grow for Southernlight Herbs orders are decided in the year prior to them being grown. Quantities are calculated on the previous year's sales and growers are issued with a letter of intent to purchase from Southernlight Herbs. Once grown, the herbs are sent to Southernlight Herbs and after quality checking, the growers are always paid within 30 days.

At its peak, the herb growers' network had around 50 Australian growers who were all producing herbs for Southernlight Herbs. This has now dropped down to 14 growers who grow in much higher quantities and most of them grow exclusively for Southernlight Herbs. Marleen's Herbs are one of the farms that sell dried herbs to Southernlight Herbs.

Although Southernlight Herbs were supportive of increasing herb growing in Australia, they also cautioned that the market for herbs is limited. Too much of a boom in herb growers can cause the market value of the herbs to drop and in the value of the herbs for the farmers

x) Australian herbal industry

As part of the research, a visit was undertaken to two herbal manufactures who buy Australian grown herbs to find out more about their motivations as well as the benefits and challenges in doing so.

Integria

Integria is a well-established company that sells herbal products across the world under the brand name Mediherb. Mediherb began selling herbal products in 1996. It was set up by Kerry Bone, a chemist who studied herbal medicine in the UK. Kerry Bone found that he couldn't source herbal materials of good enough quality to make herbal products, so set up producing herbal extracts on a farm. Originally the company grew their own plants, but as it got larger, they sourced plant material from elsewhere. Mediherb was eventually bought by Integria in 2007 who now supply a large range of herbal extracts.

During the research, a visit to the Integria manufacturing facility in Warwick took place to interview Peter Pubrick, Procurement Manger. He explained how Integria work with Australian growers such as Marleen's Herbs but currently import a large amount of the herbal material used in their herbal extracts. Integria would prefer to source their plant material from Australia and is keen to encourage Australian growers. It would reduce the need for transportation. Australia has strict customs regulations and many things need to be gamma radiated before entering the country.

Integria provide an information pack for growers who would like to sell for to them. The guide covers the market for medicinal herbs, information around Integria's specific requirements for harvesting, drying, cutting and packing the herbs and a detailed list of herbs that can be grown in Australia, along with the demand and the price per kilogram.

There is often a noticeable difference with the Australian sourced herbs in terms of appearance and fragrance. All plant material bought by Integria must go through a testing process with a sample before the sale is agreed. They test the material for active constituents using thin layer and liquid chromatography.

A challenge for the company in buying Australia grown herbs is the price point. Although they are willing to pay a higher price for a higher quality Australian grown herb, there is a ceiling on what they can pay. The company also uses a wide range of herbs, not all of them can be grown in Australia.

The lower price point is a factor that small scale herb growers would find challenging with higher living costs and less capacity for production due to the farm size. Marleen's Herbs is an exception to this, as they are at just the right scale and use a mechanised approach, they can sell their dried herb products to Mediherb and make a reasonable profit.

From his experience within the herbal industry, Peter acknowledged that it would often be easier for the small scale grower to make an income from growing herbs and selling their own value added boutique herbal products which there is a growing market for in Australia.

The Pharmaceutical Plant Company

The Pharmaceutical Plant Company (PPC), based in Melbourne, Victoria is focused on the production of herbal products primarily for the market in Australia with some exports. The company sells

traditional herbal extracts (dried plant tinctures) and fresh plant tinctures to naturopathic and herbal practitioners in Australia. They also sell a range of herbal hair and body care products and of herbal complexes to the public through health food stores across Australia.

During the research trip, a visit to PPC headquarters and manufacturing facility in Melbourne was undertaken along with a meeting with Warren Morey, General Manager. Warren explained the way that PPC works with Marleen's Herbs and sells their range of fresh plant tinctures to practitioners. The fresh plant tinctures are a unique product in Australia, where dried plant tinctures have always been used. PPC can work with Marleen's herbs as a small herb farm due to them offering a unique product that is both licenced and organic. Marleen's Herbs also grow a large range of herbs, some of which were not previously available within the Australian herb market. Selling this unique product helps the PPC to stand out from competitors.

Working with a small Australian herb farm gives the product sold by PPC complete traceability. As Marleen's Herbs have been in the industry for 35 years, they are known to be extremely reliable and produce the highest quality products. Through their knowledge and work in breeding plants their products have the high levels of active constituents. They also have an excellent record keeping system so each plant can be traced back to a specific harvest. This level of traceability doesn't exist when working with suppliers overseas, as they are bought through wholesalers, there is traceability, but it is hard to know exactly where the herbs came from and when it was harvested.

PPC also work with a few other Australian growers who supply plant material for their products. They are usually growers that specialise in single crops, for example, black walnut.

On the average PPC are prepared to pay between 10-20% more for herbs that are grown in Australia due to their superior quality and traceability.

Other learning from the Australian herbal industry

Warren Morey at PPC, discussed his experience of herb growing after 25 years in the industry. Cautioned against encouraging large numbers of new herb growers to enter the market. In the 1990's in Australia there was large interest in growing herbs. At the time, Warren was involved with a herbal company recruiting herb growers. There was a subsequent boom in herb growers which led to an oversupply. As the Australian market was not big enough, this led to disappointment amongst herb growers who received a lower price or were not able to sell their products. He commented that overall, it is also difficult for Australian herbal growers to achieve a good wholesale price for selling herbs.

All of those interviewed with years of experience in the herbal industry echoed these sentiments as they had experienced this period of growth in herb farmers in the 90's and seen that not all new businesses were successful. They cautioned that although it is possible to be a successful herb farmer, it can be difficult due to the limited market and low prices and that it is not advisable to encourage new herb farmers with unrealistic hopes of a cash crop.

xi) Key findings from Australia

Scalability – In order to sell enough raw product to manufactures you need a certain scale and mechanisation is needed.

Technical knowledge and innovation – Gives an advantage in the way of being able to create the equipment you need when it's not accessible. Technical knowledge of the product also makes it easier to communicate with potential customers.

Licenses and certification – Allows wider access to the herb market

Alternative approach to sales – Integrating the farm with other business models such as natural healthcare practice and apothecary creates a direct market for herb products.

Network – Being a part of a network of other producers provides easier access to the market

Uniqueness – If herb farmers can offer something unique to the wholesale market they can command the price they need from manufactures.

Managing expectations – the herb market can be limited for producers in Australia and it's difficult to obtain a good wholesale price for herbs. It takes skill and tenacity to break into the market maintain a viable business.

6) Is Small Scale Herb Farming Viable in the UK?

My initial goal for this research was to pin down the exact elements of what makes a herb farm successful in our economic climate and then develop a replicable model of success. However, from my experiences and conversations with herb farmers, I found that there are no off the shelf models for a viable medicinal herb farm. All of the herb farms visited created their own niche through what seemed to be a fluid process of business development as opposed to following a rigid structure or strictly intended aim, success came from a desire to produce quality herbal products then responding to the successes and failures along the journey to create somewhat unique small businesses.

Nevertheless, the learning has demonstrated that small scale herb farming can be viable for farmers in France and Australia and could also work for small scale farmers, including new entrant farmers from the UK. Below are recommendations for farmers, herbal manufacturers and other organisations, such as organic farming support organisations to enable a growth in small scale herb farming in the UK.

i) Recommendations for existing and new entrant small scale herb farmers

Develop a broad skill set

A wide range of skills and knowledge are required to produce, process and sell herbs. These include farming skills, specific knowledge on cultivating herbs, processing, the use of tools and machinery as well as sales and marketing. As demonstrated from visits to herb farmers in France working on an existing herb farm as an employee or intern is the best way to gain experience prior to starting a herb farm business.

Understand regulations

Each country has its own regulations regarding the sale of herbs as food or medicinal products. These regulations impact greatly on the activities of the herb farmer. It is important to research and understand the regulations that apply to the UK and what responsibilities and licenses are required.

Innovation in farming and processing

Small scale herb farming requires innovation. As it is a niche area of farming each farm has to find their own solutions for harvesting and processing herbs which are not always available on the market. This often requires building bespoke farming tools, machinery and processing equipment or adapting tools used for other purposes.

Crop selection

Crop selection depends on soil type, climate and marketplace. Market research and crop trials are required for each new herb farm prior to producing herbs to sell. The selection and breeding of herb plants can have a great effect on the qualities of the herb and levels of phytochemicals within it.

Value added products

For the majority of herb farmers, the development of value added products were the key to developing a viable herbal business. The smaller the farm, the more you need to process. There is a wide range of opportunities for processing herbs into value added products and it is the decision of each individual farmer to choose their own focus, whether that is on an individual product or full product range.

Managing expectations

Although there is a market for growing herbs and selling herbal products it can be limited. Herb farming is often a lifestyle choice and only a few herb farms become highly profitable. There are often longer than expected start up periods before a profit is achieved. The work is also labour intensive with long hours during the growing season.

ii) Recommendations for the UK herbal industry

Build relationships with small scale herb growers

In Australia relationships had developed over years between companies selling and manufacturing herbs and small scale herb growers. In the case of Southernlight Herbs, these relationships were nurtured with training and mentoring. This strengthened relationships and built a network of herb growers across the country to provide a reliable supply of high quality herbs.

Offering a fair price

Although manufacturers and retailers will have a ceiling of how much they are able to pay, locally produced herbs can offer improved quality, freshness and traceability. In Australia, herbal manufacturers and retail businesses were prepared to pay 10-20% more for good quality Australian grown herbs which makes it more viable for small scale herb growers to earn a living.

iii) Other recommendations

Training

There is currently no training in the UK for herb farmers and this is an area that needs developing to support the growth of small scale herb farming in the UK. Education around herb farming or developed as a stand-alone accredited course or incorporated into existing training for small scale farmers such as market gardening and food production.

Alternatively, those already engaged in herb farming in the UK could offer internship opportunities, short courses or mentoring for the development of specific herb farming and processing skills.

Access to land

Access to land is an important factor for those wishing to start a herb farming business. As herb farms often have long start up periods and rely on the production of perennial crops, long term, secure farming tenancies of at least 9 years are required for farmers who do not own or are unable to buy their own land.

The organisation Terre de Liens in France is a good example of how collective organising and investment can create access to land for new small scale farmers including herb farmers and enable new businesses to grow.

Developing support organisations and co-operatives

Support organisation and co-operatives offer invaluable assistance for new herb farmers. These organisations can have wide ranging benefits for herb farmers, such as providing access to information and training, sharing of equipment and machinery, support in understanding and navigating regulations.

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8. Appendices

i) Appendix 1 – Herb farmer interview questions

General information

Name of farm:

Size of farm:

Length of time in operation:

Herbs grown:

Products sold:

Number of paid staff:

Interview questions

1. Vision and values

Why did you start herb farming? What is/was your motivation?

Can you describe a vision you have for the farm business?

Does the farm business have any defined values?

2. Start up

What experience/training did you have previous to running this farm?

Is there anything you wish you did before starting the farm?

3. Organisational structure and legalities

What is the legal structure of the organisation? (*ltd company, co-operative, plc,*)

What business management tools or organisational models are used?

What are the roles and responsibilities of the people who run or work at the farm?

Are there any overseeing directors, what do they bring to the business?

Are there any regulations, practices or standards that are necessary for you to adhere to run your business, how do you ensure that these are met?

Are there any legal factors that dictate your activities? GMP, record keeping, batch recording

What regulations do you follow and what systems are in place to adhere to them?

Are there any fees associated with these regulations?

What certifications do they have? Are these necessary or useful?

4. Land and Resources

Do you rent or own the land?

If owned, when was it bought? How did you find the land?

If rented, who from and what is the agreement? Are you happy with the agreement?

Was there a process for selecting a location for the farm? Personal

How were the resources acquired to start the farm? (*Investment, Personal finance, Grant etc.*)

Could you list the basic tools/equipment/infrastructure necessary to run this operation?

5. Farming and Processing

Do you work to a crop plan or schedule?

What criteria do you use for crop selection?

To what extent does the land dictate what is produced.

What factors determine the quantity of raw plants that you produce? (*Sales targets, land capacity, market place?*)

How do you ensure that you meet your production targets?

Will your production schedule change over the next 5 years? (*Scaling up or down, crop rotations, perennial cropping?*) *Why is this so?*

What methods of land management are you using? (*Mechanical, hand tools, mulching, no till*)

What soil amendments are imported (*mulch, compost...*)?

Could you briefly explain what propagation methods are used?

Do you buy any nursery stock in from other producers? *Will this continue or grow? How much are they relying on this.*

Could you briefly describe the methods used to plant out your crops? *E.g. direct seed, transplants, equipment?*

What methods of weed control do you use? *What is the most effective?*

Apart from weeding do any of your crops require additional maintenance? *E.g. pruning, wind protection?*

Are there any farming techniques you plan to incorporate into your work in the future?

Can you explain what harvesting methods?

If your herbs are dried for sale can you explain what drying techniques are used at your farm?

Do you use any other form of processing?

6. Finance

Estimated start up costs?

Estimated expenses for running costs (*Breakdown of major expenses*)

Overheads?

Annual revenue?

What percentage of revenue is generated from raw material and value added products? *By raw materials we mean, sales of fresh or dried plants, value added being any further processing e.g. tea blends, essential oils, tinctures etc...*

Other sources of funding apart from sales? *Do other sources of funding impact your activities?*

What are the potential risks to the success of the farm? *How are you managing this risk? How likely are they to occur?*

7. Sales and Marketing

Who are your customers/potential customers? *E.g. public, shops, health practitioner*

Where are your customers? *E.g. local, national, international*

How did you build your customer base?

How do you promote your business and products?

What do you think motivates people to buy from you?

Are there any market trends you follow or do you stick to your own products?

How are the products sold?

How are they distributed?

8. Support models

Are you a part of a farmer's co-op or a member of any organisation that supports your herb farm business in any way?

Do you have any farming or business mentors or advisors?

9. Other benefits

Do you involve your customers in your farm in any way?

Does your farm business benefit anyone outside of your customer base? *How/why? Measured? Measuring social impact?*

Do you offer any formal or informal training around growing or processing herbs or do you plan to in the future?

To what extent are environmental issues/policies influencing the operations of the farm?

Does your business have any environmental benefits? *Have these been measured in any way?*

ii) Appendix 2 – Herb farmer interview answer summary

French Herb farm summary

Motivation, vision and values

Motivation	
L'Amante Verte	Freedom to do what you really want to do in life. Not just a business, a way of life.
Avelenn	Agricultural/ horticultural studies. An interest in the technical side of distillation.
Jardin du Centaure	Bring up children and work at the same time Wanted children to learn about production. Show that you can make a living from 1 hectare.
Ouma Plantes	Wanted to raise children together on a farm. A way of life and a passion for herbs.
La Ferme de la Quinatiere	Desire to work with hands. A more simple life.
Valyherba	Personal experience of treating son with herbs when he was sick.
La Ferme du Bien-Etre	-

Vision	
L'Amante Verte	Business making gastronomic infusions for the luxury market
Avelenn	The two business owners created a shared vision for the farm through comparing ideas of 'a dream farm' and looking at similarities and differences.
Jardin du Centaure	No vision, just wanted to farm. Started with vegetables.
Ouma Plantes	Took vision from biodynamic herb farm in southern France. Wanted to set up something similar.
La Ferme de la Quinatiere	The creation of a small business, that sells locally, generating an income that can comfortably support one person.
Valyherba	To run a business that creates biodiversity Financial autonomy.
La Ferme du Bien-Etre	Want to work towards a more ecological business. It is difficult for the three associates to work on this this, as they are so busy.

Values	
L'Amante Verte	Social and environmental sustainability
Avelenn	Environmental/ ecological concern Creation of employment Selling locally
Jardin du Centaure	Build the soil and soil organisms.
Ouma Plantes	To create a link between people and nature. View herbs as a gift from nature and through providing good herbs for people to use that creates a link.

La Ferme de la Quinatiere	To look after the land using organic farming.
Valyherba	---
La Ferme du Bien-Etre	-

Previous experience

Farm	Farming experience	Other skills	Education/ Training
L'Amante Verte	Previous experience working a large herb farm for herbal manufacturers.	Previous experience of running a business experience Communication skills – journalism	Business training – master's degree in social entrepreneurship
Avelenn	Previous work on large herb farm Previous experience on lavender farm over several seasons to learn about lavender cropping and distilling. Visits to 10-15 farms producing aromatic plants.		Agricultural studies Horticulture studies 1 year course at a school of aromatic plants Training in drying herbs and distillation Herbalist training
Jardin du Centaure	Experience growing vegetables. Experience of broad acre production		
Ouma Plantes		Internship on another herb farm	
La Ferme de la Quinatiere		Internships on other farms for herb drying.	8 month diploma in agriculture. Attended short courses in distillation and rose production.
Valyherba			One year correspondence diploma in agriculture Two year correspondence course in herbal medicine.
La Ferme du Bien-Etre		6 months working as an intern on a herb farm	One year diploma in agriculture.

Legal structure

Farm	Structure
L'Amante Verte	Property and land owned by Terre de Liens. (A society of 95 shareholders) Farm has two associates Claire and Adrien who manage the farm as the sole decision makers.
Avelenn	Property and land owned by Terre de Liens. (A society of 95 shareholders) GAEC

Jardin du Centaure	Not a registered business. Similar to self-employment, so take full liability.
Ouma Plantes	GAEC
La Ferme de la Quinatiere	GAEC
Valyherba	Registered company.
La Ferme du Bien-Etre	GAEC

Regulations/ legal factors

Farm	Regulations	Fees	Legal Factors
L'Amante Verte	Organic	Organic regulations have cost implications	GMP, record keeping, batch recording
Avelenn	Organic Cosmetic regulations for selling oils wholesale and for individual products	Organic regulations 6,000 euro per year Individual cosmetics need licensing at the cost of 600 euros per product.	GMP, record keeping, batch recording
Jardin du Centaure	Organic Wild picking regulations (Ecocert) Food regulations	Organic	GMP, record keeping to ensure traceability of the product, along with the development of a withdrawal procedure.
Ouma Plantes	Organic and biodynamic. Limited to 148 plants.	Organic and biodynamic.	Record keeping for growing and wild harvesting.
La Ferme de la Quinatiere	Organic regulations. 148 plants law.	Organic – 5000 euros per year.	
Valyherba	Organic regulations		
La Ferme du Bien-Etre	Organic regulations Restricted to selling 148 plants due to 1941 law. EU cosmetics licencing Food hygiene regulations	Toxicology test required for each cosmetic product at the cost of 140 euros per product.	

Land

Farm	Rent/ owned (R/O)	Land rented from	Length of agreement	Level of satisfaction with land agreement
L'Amante Verte	R	Society of 95 people bought the land and rent it to the farmers – set up by Terre de Liens	9 years	Very happy. It is designed for the farm activities and the farmers comfort.
Avelenn	R	Society of 100 people own the land and rent it to the farmers – set up by Terre de Liens		Very happy. As long as the land is used organically and crop correctly they can continue to farm there.
Jardin du Centaure	O			
Ouma Plantes	O	Own farm		
La Ferme de la Quinatiere	R	Terre de liens		Happy.
Valyherba	R	Field is rented from local farmer	9 years	
La Ferme du Bien-Etre	R/O	Farm buildings are rented. One field is rented; one field is owned by an associate.	9 years	Not entirely happy with the land agreement. The buildings are rented at a low price but as tenants the business are responsible for repairs, which can be a challenge. Would prefer to own the field that is rented.

Finances

Start-up costs

Farm	Start-up costs	Financed by
L'Amante Verte	115,000 euros	
Avelenn	535,000 euros (including property worth 150,000)	Bank loan
Jardin du Centaure	80,000 euros	Bank loan/ family
Ouma Plantes	Not disclosed	Personal finances
La Ferme de la Quinatiere	Estimated at 30,000.	Personal finances and agricultural subsidies.
Valyherba	Not disclosed	-
La Ferme du Bien-Etre	100,000 euros to buy the business of the pre-existing farm.	Personal finances/ 40,000 euro loan from the chamber of agriculture.

Annual revenue and running costs

Farm	Revenue	Estimated running costs
L'Amante Verte	35 000 €/year	30,000 €/year (the main overhead is packaging)
Avelenn	Not disclosed – revenue covers overheads but does not enable the associates to get paid.	Total: 124,000 €/year Charges including loans, tax, insurance - 84,000 €/year Generator for distillation – 30,000 €/year Packaging – 10,000 €/year
Jardin du Centaure	60000 €/year	20000 €/year
Ouma Plantes	Not disclosed	Not disclosed
La Ferme de la Quinatiere	20,000 €/year	Unknown
Valyherba	20,000 €/year	Unknown
La Ferme du Bien-Etre	£350,000 €/year	£210,000 €/year including associates salaries

Tools/ Equipment/ infrastructure required.

Farm	
L'Amante Verte	Tractor and implements Good quality dryer Dried herb storage room
Avelenn	Tractor and implements Harvesting machine Distillation unit Reliable delivery vehicle
Jardin du Centaure	Dryer Greenhouse Rotavator
Ouma Plantes	Dryer Processing tools Plough Irrigation (pond fed) Storage and processing areas Hand harvesting tools.
La Ferme de la Quinatiere	Seeder Tractor and tractor implements Dryer
Valyherba	Dryer Distillation unit Tractor Horse drawn weeding implements
La Ferme du Bien-Etre	Dryer

	Distiller Lab equipment Processing areas Shop
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Sales and marketing

Customers

Farm	Customers	Location of customers	How was your customer base built?	What motivates people to buy from you?
L'Amante Verte	Women – 35-50 years old. Live in cities Interested in food and gastronomy. Buy high quality groceries. Professional chefs.	National and international	Instagram Direct marketing to chefs.	Quality product experience. Products are used by celebrity chefs.
Avelenn	70-80% sales to shops. Sell to 40 shops. Other sales to farmers, ice cream makers and members of the public from shop on farm.	Locally. All products sold within a triangle of the 3 nearest towns. Nantes, Rennes and Vannes.	Through the current popularity of organic shops and demand for local organic produce.	Good quality local product
Jardin du Centaure	Women 25- 45. Sell to shops and direct.	Locally and in Paris	Promotion of products at farmer's markets. Built contacts at organic fairs.	-
Ouma Plantes	Typical customer, women, average age of 43. 70-80% sold to organic shops. Others to members of the public, restaurants and professional buyers.	National	Set up relationships with shops through organic trade shows.	-
La Ferme de la Quinatiere	Shops Members of the public at farmers markets.	Local	Built up relationships with shops through visits and offering samples.	Local product

Valyherba	Local shops Online customers	Local and international.	Part of the producers group that runs a local shop.	Loyalty (oldest herb producer in the area). Good price Good quality
La Ferme du Bien-Etre	Local people, tourists and other businesses.	Local	-	Quality of products

Sales and distribution

Farm	How are products sold?	Do you follow market trends?	How are products distributed?
L'Amante Verte	Grocery stores Internet	-	Teas sold online by a tea company in Normandy rather than distributed from the farm.
Avelenn	Mainly sold in shops, online and at farmer's markets.	No. Don't follow market trends with essential oils. There are often short lived fads for essential oils.	Distributed to shops or posted.
Jardin du Centaure	Online Shop on site In other shops e.g. Local organic shops and supermarkets.	-	Distributed to shops or posted
Ouma Plantes	In shops Online	No	All products distributed by post.
La Ferme de la Quinatiere	Organic shops Occasional markets	No	Self delivery and by post.
Valyherba	In shops	No	Self delivery
La Ferme du Bien-Etre	80% sold direct, 20% sold to other businesses.	No but become aware of trends through passion for the products.	

Support models

Farm	Co-op/ society/ group membership ?	Other support
L'Amante Verte	No	Business and farming mentors
Avelenn	No	Gain advice from other farmers.
Jardin du Centaure	No	No
Ouma Plantes	Paysan herboriste Syndicat de simple sympathiser.	Had herb farmer mentors initially.
La Ferme de la Quinatiere	Paysan herboriste. Formed a union of local herb growers. Four herb courses per year. Member of a local producers group.	No
Valyherba	Syndicat de Simple Agribio Drome Confederation Paysan Local herb producers group.	No but receives regular advice from other members of Syndicat de Simple.

La Ferme du Bien-Etre	Paysan Herboristes Confederation paysan – agricultural union Blue-Verte-Voges – local producers association. The French association for wild harvesting.	No
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Other benefits.

Farm	Social	Environmental
L'Amante Verte	Host interns. Host visits/ garden tours. Run a cafe and library on the farm.	Not ploughing soil leading to improved soil structure. Increased biodiversity – observed but not measured.
Avelenn	Have trainees on the farm. Run an open day every year. Create links with other local producers.	Planted 3km of hedges.
Jardin du Centaure	Offer tours and educational events.	Changes in biodiversity over time. Not recorded.
Ouma Plantes	Internships	Not measured.
La Ferme de la Quinatiere	Offer 5-6 internships per year for herb production students.	Planting new hedges. Terre de lien are recording the environmental benefits of the
Valyherba	Student groups visit farm on day trips. Occasional internships.	Unknown
La Ferme du Bien-Etre	Accept trainees from agricultural college on a regular basis.	-

Australian herb farms summary of interviews

Motivation, vision and values

Motivation	
Bronzewing Farm	Started farming cattle but wasn't keen. Wanted to sell a product that nobody else made.
Marleen's Herbs	Being our own boss. Wanted to work outside with our hands. Herbs are a high value crop – good to grow on a small land base.
Southernlight Herbs	Inspired by a conference organized by two herbalists (1988) Looking to have a family and run a business together.

Vision	
Bronzewing Farm	No vision initially. It just grew naturally.
Marleen's Herbs	Vision of a family run farm
Southernlight Herbs	To grow the pre-existing Southernlight Herbs business and expand it by working with more growers.

Values	
Bronzewing Farm	As a part of Gould's Natural Medicine the underpinning values of the farm are to produce affordable, high quality healthcare.
Marleen's Herbs	Environmental sustainability
Southernlight Herbs	<p>Take action to minimize carbon footprint through:</p> <ol style="list-style-type: none"> 1. Organic 2. Minimal packaging 3. Business runs from solar energy 4. Employ staff who live locally 5. Support car pooling 6. Swap farm machinery to solar energy <p>Support local growing through fair pricing. Support new growers through teaching and mentoring.</p>

Previous experience

Farm	Farming experience	Other skills	Education/ Training
Bronzewing Farm	Was farming 5-6 years (cattle and vegetables) before growing herbs.	Practical labouring work Learnt traditional rural skills in Canada.	Botany degree
Marleen's Herbs	None	Practical and mechanical skills	Forestry qualification Attended government run farm business course.
Southernlight Herbs	Experience working on herb farm and business making tinctures and herbal extracts.	Community development work	-

Legal structure

Farm	Structure
Bronzewing Farm	Company limited by shares
Marleen's Herbs	Partnership
Southernlight Herbs	Partnership

Regulations/ legal factors

Farm	Regulations	Fees	Legal Factors/ record keeping
Bronzewing Farm	Therapeutic goods act Organic regulations	Organic certification	Hand written batch records for harvest and tincture making Fire safety – ethanol and bushfire Lab conditions for tincture

			Tea packaging protocol checklist: batch number, origin, weight. Stock check Records for standard percolation format. SOP for standard maceration/ percolation Labelling – address, ingredients, directions for use.
Marleen's Herbs	Organic regulations Licence to grow medicinal herbs To sell in Europe, licence for each product Therapeutic Goods Administration Licence (TGA)	Organic certification TGA licence – 7,000 dollars per year.	Batch recording/ tractability
Southernlight Herbs	Organic certification Food safety standards SEDEX – needed for exporting herbs.	-	

Land

Farm	Rent/ owned (R/O)
Bronzewing Farm	O
Marleen's Herbs	O
Southernlight Herbs	O

Finances

Start-up costs

Farm	Start-up costs	Financed by
Bronzewing Farm	None – existing infrastructure was available from previous business	N/A
Marleen's Herbs	Not disclosed	Loan, family help, acquiring assets over 30 years.
Southernlight Herbs	Not disclosed	Not disclosed

Annual revenue and running costs

Farm	Revenue	Estimated running costs
Bronzewing Farm	Unknown	Unknown
Marleen's Herbs	400,000 AUD	200,00 AUD
Southernlight Herbs	Not disclosed	Not disclosed

Risks

Farm	Risk
Bronzewing Farm	Risk of succession after owner retires
Marleen's Herbs	Low number of buyers is a risk Changes in the law for medicinal herbs can change the market. E.g. comfrey
Southernlight Herbs	Not able to make claims about herbs that are used for wellbeing. TGA regulations

Tools/ equipment/ infrastructure required.

Farm	
Bronzewing Farm	Dryer Processing area and equipment Tincture making area and equipment. Tractor Rotovator Hand tools
Marleen's Herbs	Solar harvest machine. Irrigation – laterals and sprinkler system. Tractor and implements – Terrateck tool carrier, plough, tillage implements for weeding and seedbed. Herb dryer Herb chopper Hydraulic press Moisture analyser Storage space Welding and mechanical equipment.
Southernlight Herbs	-

Sales and marketing

Customers

Farm	Customers	Location of customers	How was your customer base built?	What motivates people to buy from you?
Bronzewing Farm	Broad spectrum – High income to low income customers	Local	Built on previous customer base of Gould's Natural Medicine	Gould's is a well-known apothecary on the high street. In operation for 100 years. Quality of the service and healthcare provided.
Marleen's Herbs	Herbal manufacturers	Mainly Australia. A few in Europe.	Approached manufacturers with a unique product.	License's Experience in the industry – reputation and trust.

				Offer a point of difference for manufacturers.
Southernlight Herbs	Herb stores, online retailers, herbalists and naturopaths.	Australia	Built on exiting business. Promotion on Facebook	Supply best quality herbs in single herbs. Authentic Consistent with quantity and quality

Sales and distribution

Farm	How are products sold?	Do you follow market trends?	How are products distributed?
Bronzewing Farm	In apothecary shop	-	N/a
Marleen's Herbs	Directly to herbal manufacturers.	Tries to keep up with the market trends and predict the next shift in the market.	By courier.
Southernlight Herbs	Direct to customers	-	Post