Growing Sprouts, Shoots and Microgreens

Second Edition

www.underthechokotree.com
Sustainable Living in the Suburbs

By Nev Sweeney

Acknowledgements

Fran, for her article ‘My sprouting Journey’.

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1.0 Sprouts, Microgreens and Shoots – Why Bother?

When you decide, for whatever reason, that you want to have a go at growing your own food, I bet your first thought was not about growing sprouts or microgreens. I can understand that, mine wasn't either (all those years ago), but maybe it should have been. Here are some points to ponder as to why!

There are a number of very good reasons why you should have sprouts, shoots and microgreens growing in your life, even if it was not your first thought and here is why -

- They are tasty and versatile, there are a huge number of veggies that can be grown as sprouts and microgreens, and they can be included in many dishes as a garnish or a main ingredient. Such dishes include salads, sandwiches, stir fries, noodle bowls and pasta dishes, dips and spreads, soups and smoothies. They can be used instead of lettuce in burgers, tacos and burritos, they fin into all sorts of dishes. You can bet that there will be a number of sprouts, shoots and microgreens that fit your flavour profile!
- They provide great nutrition being rich in a variety of vitamins and minerals, antioxidants and depending on the variety you use they can also be high in protein and fibre. (No, I refuse to use the term 'super-foods!)
- They don't take up much space. Depending on how many you want to grow they can be placed in or on cupboards, tables or bookshelves and when it comes to sprouts, they can be placed inside cupboards or wherever you have space because they don't need light to grow. They are ideal way to produce food if you live in a flat, unit or townhouse where your growing space is restricted, or non-existent.
- Don't need much water, especially if you set them up the way we show you in this eBook. When it comes to sprouts, they need to be rinsed a couple of times a day, but the rinse water can then be used to water other plants, rather than dumped down the drain. In hot dry weather conventional fruit and veg can require quite a bit of water to keep going, but these fellas don't.
- They're easy to set up, and require only a minimum of kit, most of which you probably already have hanging around. Things like glass jars, plastic lunchboxes and

aluminium trays sitting in the back of your cupboard cost nothing, with the addition of some seed and you are able to feed yourself.

The expensive and hard-to-get equipment to grow sprouts, shoots and microgreens

- They are cheap to set up and run, the main ongoing cost is seed, and perhaps a bit of potting mix, the cost of which is nothing compared to the cost of buying in your sprouts and microgreens at the supermarket.
- They are quick to produce food, there is no need to hang around for a couple of months waiting for a harvest, they will provide a harvest within a week of setting up and getting things firing,
- They can improve your resilience, being able to produce some of your own food reduces your reliance on long supply chains that can be cut unexpectedly. Some seed and the knowledge of how to grow sprouts, shoots and microgreens means less worries in times of trouble.
- They can reduce your environmental impact, taking it back from (to use the imperial terminology) from food miles to food feet!

If you want to start growing food, you could do a lot worse than starting out growing some mung bean sprouts in a kid's lunchbox. Starting out small is a great way to go, then as your enthusiasm builds and you learn more (particularly by reading this eBook) you can spread out and diversify, adding more and more crops to your repertoire.

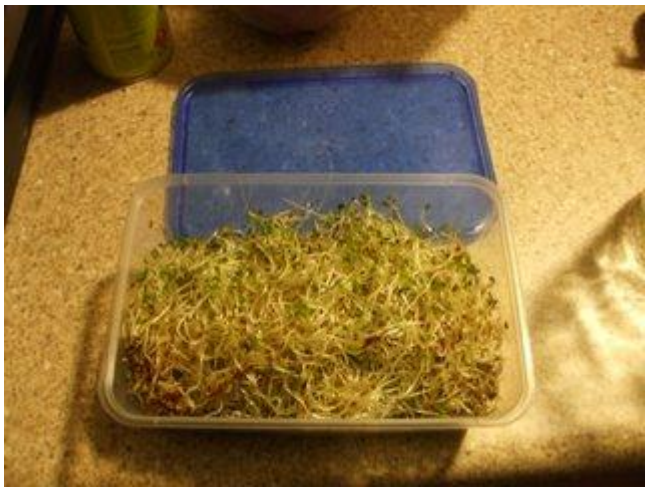
Why not make a commitment and start tomorrow? (you could start today, but you need to soak the sprout seeds overnight!)

2.0 Sprouts and Sprouting

2.1 Introduction

We all know that we are supposed to have at least five serves of veggies a day and that the fresher the veggie the more vitamins they contain. There is always a "but" though. But what if you don't have time, space or inclination to grow veggies? The obvious answer – get the hell off my website! Oops, sorry, forgot to take my medication today. The answer is sprouting seeds, beans and grains!

Sprouting seeds is one of those hugely good ideas that everyone should know about , it can provide lots of fresh, nutrient packed veggies in about 5 minutes per day once you are set up and the setup is so easy and simple even I can do it. If you have kids you can them involved in sprouting, if they are part of the process they will enjoy consuming the output even more.



Fresh Alfalfa Sprouts

The basic process is to get hold of some seed and then keep them moist, but not wet so that they germinate and put on some growth, during which increase their content of vitamins by as much as five-fold, then we eat them. Mung bean sprouts and alfalfa sprouts are the most commonly available sprouts commercially, mung bean in Chinese food and alfalfa (also called lucerne, as in the hay!) from the sandwich shop. But all sorts of seeds, beans and grains can be sprouted – adzuki beans, barley, chickpeas, wheat, millet, buckwheat, lentils, alfalfa, sunflower, fenugreek, sesame, cannellini beans, kidney beans, soy beans, most brassica seeds (cabbage; kale; broccoli etc.)

There is really only one absolute regarding sprouting – you must be absolutely sure that the seeds are not treated with a chemical such as a fungicide (added to stop damping off killing the seedlings) which could poison you. So either sprout your own seeds that you have saved or buy seeds from a reputable merchant who sell seeds that are OK for sprouting and direct consumption.

If you are a gardener, you know it is good to let the brassicas sprout and flower once you have harvested them or if they get away and run up to seed, they attract beneficial insects. If you have a number of varieties flowering at the same time, however, you might not have the confidence in using the seeds to replant your veggies, they may have crossed and so not breed true. Even if this is the case you can still sprout them and eat the sprouts, it won't make any difference to the flavour or nutrient levels.

2.2 Sprouting Using the Glass Jar Method

There are a number of ways that sprouts can be grown but probably the simplest and easiest is to use a glass jar, other methods will be covered in later articles. To do this you will need –

A glass jar (strangely enough) – I use an old fowlers Vacola bottling jar but any jar such as coffee, peanut butter or pickles (well decontaminated!) will do.

Some material to act as a filter – I use pantyhose liberated from the wife's stock of holey ones (they were too small to fit me anyway).

A rubber band – I had some old Vacola preserving rings but a normal rubber band the right size will do.

To grow your sprouts –

1. Check over your seeds and remove any broken or damaged ones.
2. Put a table spoon's worth of the good seed that you want to sprout into your glass jar, pull a piece of pantyhose across the mouth of the jar so it is fully covered by the material and secure it with a rubber band.

3. Half fill the jar with water and allow it to stand overnight so that the seeds take up the water and swell, starting the germination process.

Soaking the seeds

4. The next morning pour out the water (onto your pot plants, no sense wasting it!) and then leave the jar on its side with the rear elevated so the remaining water can drain out.
5. Leave the jar out of direct sunlight but in a warm area to promote germination. Check and rinse again after 12 hours.
6. Continue to rinse the sprouts twice or three times a day. As well as providing water to keep the sprouts germinating, the regular rinsing removes waste products and any stops the sprouts overheating.

Starting to sprout after a couple of days

7. After a few days or when the sprouts have reached the length you like, rinse them one last time and remove them from the jar. Pick over the sprouts and remove any seed skins, any seeds that haven't germinated and any sprouts that look a bit dodgy.

After a week - chock full of yummy sprouts

8. Transfer the sprouts to a container and keep them in the fridge, they are ready to eat!

Sprouts are great in sandwiches or wraps, to hold an omelette together or in stir fries or on top of your favourite soup. Sprouts are cheap and easy to grow, nutritious and you don't need 5 acres to grow fresh veggies. Why not give them a go today?

2.3 Sprouting using the fabric bag technique

It is easy to make a sprouting bag, my lovely partner in the sustainable lifestyle put one together in about 10 minutes, so it is an easy and quick project if to have a mind to make one. I used some unbleached calico, because it was what we had hanging around but any fabric that will let water through and that has no objectionable dyes that will contaminate your sprouts should do.

Making the bag

Bag showing the draw string

To make the bag cut a rectangle of cloth 500mm x 250mm,(I suppose any size will do but you have to start somewhere and this is what worked for us) fold the cloth over to make a 250mm x 250mm square and sew up two sides about a centimetre in from the edge giving a bag secured on three sides. Fold the material around the top over by about a centimetre and sew round the top, then make a vertical cut the width of your draw string – we used 6mm wide yellow ribbon (very pretty) in the sewn-over section. If you wanted to get techo you could sew this like a button hole but for our purposes we just left it as a cut. Tie or pin a safety pin to the end of your draw string material, feed it in and around and out the same hole again so that your draw string will close the top of the bag and then tie off the draw string ends to each other.

Now turn the bag inside out and you are ready to commence sprouting!

Using the bag

1. Place about a dessertspoon full of your sprouting seed into the bag.

2. Place the bag in a container that will hold water, we use an ice cream container, and run water into the bag so that the seeds are well covered. Leave overnight.

Soaking the seeds in the bag

3. The next morning, remove the bag and let it fully drain. We hang the bag up using the drawstring attached to any handy hook or knob. If you don't want water all over the place, put the empty ice cream container back under the bag to catch the drips.

Seeds soaking in the bag

4. Rinse the bag and drain at least twice per day, once in the morning, once in the evening and then rehang to drain once the seeds/sprouts have been rinsed.

Bag hanging from the widow catch and draining

5. Repeat step 4 until the sprouts reach your desired level of maturity and then harvest and keep the sprouts in the fridge where they will last a week or so.

A bag fulla sprouts!

6. Turn the bag inside out and wash off any seed coat or other gunge and place it in with a white load in your washing machine or hand wash with soap, then dry on the line in the sun and the wind.

If you use a light coloured fabric like we did you will get some discolouration although this does not seem to affect the performance of either the bag or the sprouts. If it bends you out of shape to see your bag discoloured you could bleach it before washing as above.

Bag washed and drying on the line, ready for the next batch!

If you wish you can make a number of sprout bags up and rotate them, starting off a new bag every day or two, to give yourself a continuous supply of sprouts

2.4 The Seven-Day Sprouter

Do you like sprouts? I mean REALLY like sprouts? Then this little gadget is for you! It is cheap, quick and easy to build and of all the projects I have done this is the only one that actually worked too well, pumping out so many sprouts that we couldn't eat them all.

The dimensions for the sprouter are based on a starting charge of two dessertspoons full of fenugreek seeds, because they are the type of sprouts we like so if you like bigger sprouts, say soy beans or smaller like alfalfa then you might want to adjust the sizes accordingly. Likewise this is designed to provide lots of sprouts on a seven day cycle so if you use faster or slower growing sprouts you may need more or less trays. To start I suggest you make less than you need and then if the sprouts are not fully grown as planned add a few more.

Making the Sprouter

1. The base of the sprouter is formed by a cheap plastic tray that catches any water dripping through the fabric. The one I got is 250mm wide by 335mm long and 70mm deep, all of the sprouter trays will sit on top of it.

2. The sprouter trays are made by 42mm x 19mm DAR pine and cutting the ends on a mitre saw or with a hand saw using a mitre box. We have only had a mitre saw for a few months, I never saw the need for one but my wife was starting to do some wood work and wanted one so of course we got it. Now we have it I have found it to be very handy and it makes it easy to make fast accurate cuts in timber.

3. To make the sides I bought 900mm lengths, one per tray, so that they were easy to transport (smaller car) and there was very little waste. I used the following process –

- Using the mitre saw, with the timber in the flat position (ie 42mm side down) make a 45° angle cut right at the end of the timber then measure the back (long side) to 335mm and make another 45° cut so that it is angled back towards the already cut and of the timber.
- Turn the timber over and measure 335mm along the back side and repeat the cut so that the angle is sloped back towards the cut end again. This should give you two identical pieces of timber with an external length of 335mm and an internal length of300mm.
- Repeat the above process and make then ends with an external length of 250mm and an internal length of 215mm.

The first tray made, sitting on the catch tray

•Assemble all four sides into a box with external dimensions of 250mm x 335mm or whatever size you have calculated it should be.

•To hold the box together I went for cheap, quick and nasty and grabbed by staple gun, applying a staple each side of each mitred joint. If you wish you could glue (assuming the glue is food safe and water resistant), screw or nail your sides together.

The Stapler

4. Now to install the base of the box, which is what the sprouts will sit on as they.....well, sprout! You can do this by getting hold of some cheap calico and cut out a piece a bit bigger than the size of your box.

5. Grab your staple gun again and place the calico on the bottom of the box so you have some overhang all round, this is so you can grip the calico and keep it taught.

The Calico stapled onto a frame

6.Place the calico over the bottom of the box and put a staple into each corner to secure it then, while holding a bit of tension on each side, put staples through the calico

into the wood about 25mm to 50mm apart. Then use a very sharp pair of scissors, your wife's sewing scissors would be ideal but don't drop or blunt them or your life won't be worth living, and cut off any overhanging calico to make the edge nice and neat.

7. Once this is done, on as many trays as you intend to use, you are ready to operate.

The completed sprouter

Operating the Sprouter

1. Get hold of some of the seeds you want to sprout and measure them out so you get used to making the same amount of sprouts each time, as mentioned above my sprouter is based on two dessertspoons of fenugreek seed. When the seed is measured out put the seed into a container, cover the seed with plenty of water and leave overnight.

2. The next morning pour off most of the water and then pour the wet seeds into the bottom tray and spread them out. You can tilt the tray so that any excess water can drain out the sides between the staples, some will be absorbed by the calico to keep the sprouts moist.

3. In the afternoon get hold of a spray bottle or sprinkler bottle or make one by punching small holes in the top of a PET drink bottle and gently sprinkle the seed with water and drain off the excess.

The sprinkler bottle I use

4. That evening, prepare another charge of sprouting seeds by soaking them in water.

5. Repeat steps 2 to 4 until all trays are full and your first sprouts are ready to harvest. Take them out of the tray, they are ready for immediate use or can be kept in a container in the fridge for a week or so.

6. Wash out the tray. If there is any sign of mould (black spots etc.) on the calico wash the area over with hydrogen peroxide (often just referred to as “Peroxide”)which acts like a bleach but breaks down to form oxygen and water so it leaves no residue, it is available from chemists and supermarkets. Leaving the tray out in the sun gives the mould a hard time too.

7. Recharge you tray the next morning and the cycle begins again. Don’t’ forget to regularly empty the catch tray at the bottom of any drain water.

What the trays look like in use

2.5 Producing Mung Bean Sprouts

My DIY mung bean Sprouter!

I like the beansprouts that you get in the Chinese restaurants. They are mung bean sprouts and over the years I have tried to replicate them at home so I can put them in my noodle and veggie stir fries or soup noodles or even salads. I have never been happy with the results using standard sprouting techniques, however. After some trial and research I have found a simple method of producing those long white crunchy sprouts just the way I like them. The trick is keeping them in the dark until they have gotten to the right stage.

First thing I needed was a container to raise them in, I have seen those wheeled storage containers used keep stuff in pressed into service as a sprouter but this was a much larger operation than I wanted. I looked through our plastic-ware cupboard but couldn't find what I wanted – a plastic lunchbox the kids has used years ago – unfortunately in the intervening years it had been tossed.

The next trick was to head for the salvation army second hand shop, where I was able to find what I wanted for a mere $2. For this princely sum I was able to get an opaque greenish plastic lunchbox (with lid!) which had the following dimensions - 215mm long x 140mm wide x 110mm deep (although the dimensions are not critical). To be honest I had intentions of drilling holes in the bottom to aid drainage and holes around the top to aid in ventilation but was in a hurry to try it out. The sprouter seems to work very well just as it was without the holes, although I may add them in in the future.

A word about mung beans – dried mung beans are available quite cheaply from Asian or Indian grocery shops. They are grown for eating so sprouting with them is OK (I'm still alive). Given the choice I buy Australian mung beans.

The Process

1. Pour some dried mung beans into your sprouting container, not so many as to cover the bottom of the container, leave some room for them to expand. About 70% - 75% coverage of the bottom seems to be about right. (a rule of thumb is

125ml of seeds per litre of sprouter volume, but if in doubt put less in rather than more.)

2. Pour them out of your sprouting container and into a glass jar (the why of the glass jar become obvious later!) and cover them in fresh cool water to twice the volume of the beans.
3. Soak the beans for at least 8 hours, overnight usually works out to be a convenient soaking time. Once the beans have been soaked, check them and see if they have all absorbed water and expanded. Occasionally I find some have not and are still small and hard. If this is the case, change the water and leave them for another 8hrs – 12 hrs. If they haven't expanded by then go on to stage 4 and pick them out once the sprouting is completed.
4. Once the beans are soaked, drain them well and place them into the sprouter. Place the lid on your sprouter but don't push it on so that it is secured, leave it up a bit for ventilation. Place the sprouter in an area which does not get direct sunlight, but where you will see it and not forget to rinse it out.
5. Speaking of not forgetting to rinse your sprouts out……. Don't forget to rinse them out morning and night with cool, clean water. The rinse water can go on your plants, don't waste it!
6. Do this for about 5 to 7 days depending on how long you like your sprouts, rinse and check them twice daily.
7. Once they have reached your preferred size, rinse them and drain as thoroughly as possible, then put them in a sealed container in the fridge where they will keep for about a week.

But wait, there's more!

Before you eat your sprouts you may wish to remove the green seed coat from them. The seed coat is not toxic or unpalatable but they have a 'plasticky' texture (or 'mouth feel') and make the sprouts look crappy and unfinished. Place the sprouts in a bowl large enough to fit them all and fill the bowl with water. Gently agitate the sprouts and most of the seed coats will float off or sink to the bottom where they can easily be removed. Some seed coats, however, will have the sprout growing through them and will need to be removed manually (which can be tedious if there are lots of sprouts).

Your sprouts are now ready to be consumed and can work well in such diverse dishes as Chinese omelettes, soups, stir fries, salads, spring rolls or in small amounts as a garnish on just about anything. They are cheap, nutritious and easy to grow with a minimum of gear as well as being versatile. So get sprouting!

Initially

A couple of days after soaking

Fully Grown

2.6 ‘My Sprouting Journey’ by Fran

I have been trying to grow and like sprouts for many years now. I grew up in a "hippy town" in the South of Western Australia and so the desire to sprout things was high, however I never much appreciated the taste or texture of home-grown sprouts. I tried REALLY hard. Through the years I have bought expensive sprouters that electronically time a mist over the trays of sprouts, the old jar method etc. and each time, although I had great success growing the sprouts, I couldn't appreciate the strong grassy "green" taste of the results or the tough tailed root portions.

Closeup of the retrofitted lid

I used to work for a delicatessen, and they would get imported antipasti vegetables from Italy in huge glass jars. When the jars were empty, they would discard them and so I asked them if I could have the jars. They said "sure" and I amassed quite a collective of lovely jars. I ended up giving most of them away when we moved to Tasmania, however for some reason I kept one large jar that my husband had retrofitted for one of my sprouting attempts by cutting out a portion of the metal lid and siliconing in a round piece of metal screen door mesh. I have NO idea why I kept it

because by that stage I knew I wasn't going to bother with home sprouting again, but I did.

Seeds soaking overnight prior to going into the sprouting jar

Fast forward to the "cost of living crisis" of 2023 and suddenly the price of fresh vegetables skyrocketed. We have a lot of possums on our 4 acre property but they are easily prevented from eating our crops, however the rats are proving to be a serious problem. We built 2 fully enclosed large cages over a series of water wicking raised garden beds that we made out of old fridges and freezers that we bought from the local tip shop and thought that would stop the rats but it hasn't sadly and so we get very little of what we grow here (until we can find a solution to our rat problem) and when the price of veggies skyrocketed I had to think smarter, not harder as we are a low income family who eat a LOT of vegetables.

Soaked seeds into the sprouting jar!

I saw a video on YouTube from a Vietnamese girl who's mum used to grow sprouts for her market stall in Vietnam and it completely revolutionised my sprout "experience". I tried out her method and it worked brilliantly. I now grow, and eat, 4 litres of sprouts every 5 or so days on rotation. I grow a mung bean and adzuki bean mix for the tastiest largest yield and I get my beans from my local health food shop. I soak the beans (130g adzuki and 170g of mung beans/300g total) overnight till they have swell up and then strain them off and rinse them (keeping the strained soaking water and rinsing water in a bucket for using on the garden) and put them into my husbands retrofitted 4 litre jar with the mesh in the lid. I then put the jar into a fitted wardrobe in my spare room and shut the door. The objective is to prevent the sprouts from seeing the light which causes them to form the tough roots and grassy tasting leaves early on. It works!

After 5 or so days, ready to go in the fridge

Every day I remove the sprouts (in the evening when it is dark) and soak the sprouts for about 10 minutes by covering them in water and then drain them (into my bucket) till they stop dripping and put them back into the wardrobe in the spare room. "done". After 5 or so days (differs with the seasons) I have a 4 litre jar full to the top with delicious sprouts that I absolutely love.

Yummy sprouts!

You end up with sprouts that are very similar to the mung bean sprouts that you can buy in the supermarkets but without the ridiculous price tag or environmentally destructive plastic bag. You can pretty much sprout any legume or seed this way but you would have to tweak the length of time for sprouting depending on the legume/seed. Things like buckwheat should only be sprouted till you see a tiny tail as they go slimy very quickly. Note, there are some larger beans that can be sprouted but should only be consumed cooked. Red kidney beans are one example. My advice would be to research anything carefully that you are planning to sprout just to make sure that you are aware of any extra steps needed in the process.

Sprouts transferred to storage jar and fridge-ready

I am an absolute sprout convert now and eat them every single day. Growing my own gave me back an affordable and most enjoyable highly nutritious vegetable that has a multitude of uses from raw through to cooked. I wholeheartedly recommend sprouting as a way to easily grow a crop without pests even getting a look in. Very satisfying when pretty much everything else is predated around here. It is also incredibly economical. 300g of sprouts growing in 5 days to 4 litres of sprouts is a brilliant return for the small outlay for the beans.

2.7 Sprouting Using Home Grown Seed

Ready to go in the fridge!

Growing edible sprouts is one of those hugely good ideas that everyone should know about, it can provide lots of fresh, nutrient packed veggies in about 5 minutes of work per day once you are set up and the setup is so easy and simple that even I can do it! If you have kids you can them involved in sprouting, if they are part of the process they will enjoy consuming the output even more.

The basic idea is to get a container, a glass jar works well, and put a fabric cover over the top and secure with a rubber band. This is as technical as it gets, now get hold of some seeds for sprouting (no fungicide coating) put dessert or tablespoon full in the jar and fill the jar with water. Apply the fabric top, then leave overnight. Empty the jar through the fabric top so the seeds are retained, then rinse the jar and seeds with water morning and night until they get as big as you want!

You can mostly put a setup together from stuff you have hanging around, you only have to buy in the seeds……or do you?

If you grow your own veg it is quite possible to save sufficient seed to sprout them.

There are some advantages to growing, saving and sprouting your own seeds –

- Allowing your veg to flower attracts beneficial insects (pollinators and predators) to your veg patch,
- Saving the seed means you can continue to grow your veg, season after season, from your own resources,
- Excess seed can be used to provide even more food for you in the form of sprouts or microgreens,
- Some veg (eg brassicas) can be very promiscuous and easily cross pollinate, providing seed that will not breed true, but can still be used for sprouts and microgreens.

Broccoli seed, ready for harvest

As well as tending to cross pollinate, brassicas are prolific seeders and I recently availed myself of a mixture of bok choi and broccoli seeds. Seeing as I wanted them for sprouting, I did not need to keep them separated, as I would need to do if I was looking to use them to re-sow.

By using your own seed, you can be sure that they are absolutely fresh, so that they will have a high germination rate and you can be confident that they are not treated with anything, so are safe to consume.

Harvested seed

The initial soak

Freshly rinsed and drained on day two

A week later and looking good

However, having said that, it will still be worth doing a germination test to make sure they are viable, and to prevent disappointment later on. This is also a fairly simple process, get hold of some absorbent paper, I use coffee filters but others use paper towel. Dampen the paper and place a representative sample of seed in it (label if you are doing more than one test). Fold up and place in a jar and keep warm of a few days. Check how many of sprouted and express as a percentage of the original amount. If the germination rate is less than 50% you can still sprout, but will get a lot of unsprouted seed mixed in with your sprouts.

Seed and seed pods on the newspaper

There are a number of ways to save brassica seeds, but I just waited until the pods were nice and dry, then crushed them over some newspaper, then took the empty pods away and place the seed and chaff into a plastic container. Blowing across the top of the container (outside!!!) removes the lighter chaff and leaves the seed in the container.

3.0 Shoots

3.1 Experiments with soil sprouts

I picked up a book recently because it looked really interesting, and it turned out to be something I wanted to try. The book was called 'Year-Round Indoor Salad Gardening' by Peter Burke. He was growing sprouts using a process he calls 'soil sprouting', which appears to be a cross between regular sprouting and growing microgreens, but with some differences. His idea was to use the process to grow salad greens indoors during times in the US when gardening outdoors was not possible due to the low temperatures. I found it interesting because there was no need for direct light of any description, either from the sun or grow lights. Needless to say I had to give it a go!

Summary of the Process

The idea is to soak sprouting grade seeds (ie edible, no chemicals added) overnight, spread them onto a container filled with a specific seed raising mix, put a wad of moist newspaper on top, then place them into a warm, dark cupboard for 4 days. Once the sprouting and initial growth is started for the 4 days in the dark, remove them from the cupboard and place them on a windowsill and green them up and grow them on until they are the size you want, harvest and eat. Simples!

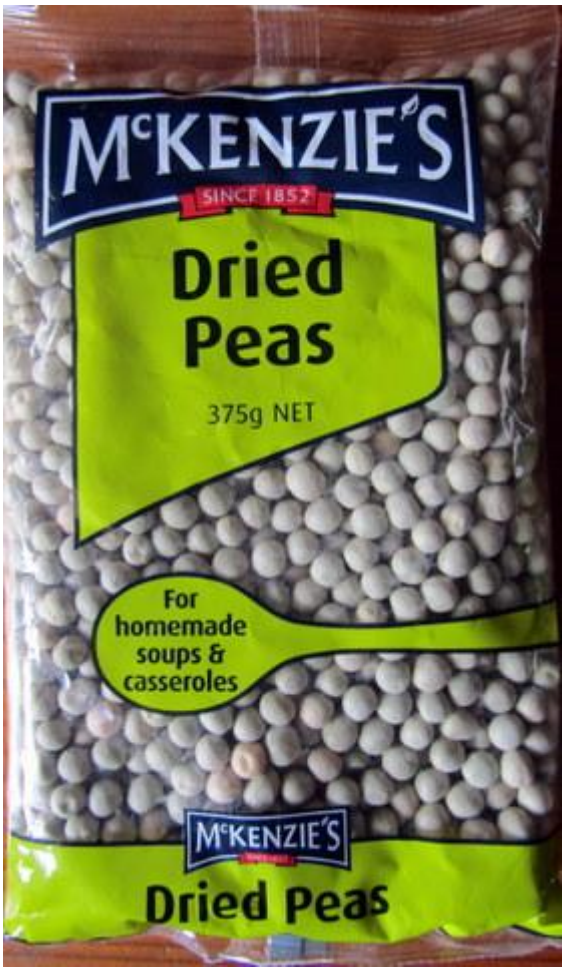
Another advantage (apart from the lack of need for light) of the process is that it lends itself to a continual rotation, or sow, grow, green, harvest and eat. By setting up one or more trays every day, you can ensure a continual harvest of salad greens without stepping outside your house.

The Details

Seeds

Most seeds designed to be eaten as sprouts or microgreens will work for this process, but there are a couple of other options which can be followed rather than buying small amounts of expensive seeds specifically for sprouting. There are some seeds which are designed to be used as food directly available in the supermarket or similar shops.

These include dried peas (designed for homemade soups and casseroles not the 'Surprise' style peas) or chickpeas in the supermarket or adzuki beans or mung beans in the Asian supermarkets. Bulk food shops also have grains which may be sproutable such as wheat, buckwheat, rye or millet which can also be used with this techniques. With a little experimentation and searching you can find palatable grains, seeds and legumes ideal for this process which are quite reasonably priced.



Soil

The soil mix advocated in the book is very specific, but is based around peat, which is not particularly sustainable, so (as usual) I thought I would try out my own. First cab off the rank was my standard potting mix/seed raising mixture: a mix of one part coarse sand, two parts worm castings and three parts cocopeat AKA horticultural coir, all by volume, and it worked! It seemed to do pretty well for me anyway.

The mix of soil and water is also quite specific, too much water and your get sludge, not enough and it affects the germination of the seeds. I let my soil mix dry out for a few days before adding any water at all so that the soil/water mix was reproducible. After a bit of fooling around I found that a ratio of 1.75 cups of water to 2.0 litres of soil works pretty well. I just put the soil and water together in a closed container and shook to distribute, then left it to soak overnight. I used a sealable plastic bag and kept it sealed so that the soil and water ratio remained the same ie no evaporation.

The other technique the book talks about is to put a small amount of a fertiliser, liquid sea kelp, in the bottom of the growing container before placing the soil in there, that way the seeds sprout and send down roots, which hit the fertiliser just as they need it. So I put together a little experiment with three trays of sprouts: one had a small spoon of eco seaweed concentrate **(S)**, one had a small spoonful of SwiftGrow **(F)** fish waste fertiliser (which is produced by a friend of mine) and a third one with nothing as a control or blank **(B)**.

In the end there didn't seem to be much in it, with the blank being as least as good as either of the other two. As a result, I elected not to add any extra fertiliser. I assume the difference is that his formulation for the soil had no added fertiliser (apart from the stuff in the bottom of the container) whereas mine has the worm castings. Anyway, take from that what you will!

Containers

These can be just about anything, and there is no need for drainage holes. In the book they use aluminium food trays, which made sense to me as they are light, cheap, recyclable and a good size to experiment with. I bought a couple of packs form our local El Cheapo shop for less than $10. There were a couple of sizes, but I bought the smallest at 20 cm by 11 cm by 5 cm deep.

Paper Cover

This is the cover of moist newspaper placed over the top of the seeds once they are applied to the top of the soil-filled container to keep them moist and aid in germination. To suit my containers I used one sheet of newspaper for each cover. I made the covers by taking a full newspaper sheet and folding it in half so that it was two thicknesses of normal newspaper size (ie 390mm x 280mm), folded it in half top to bottom so that it was now 195mm x 280mm, then folded it in thirds to form a newspaper pad roughly 90mm x 195mm. I then soaked the pads in the sink with warm water in it for 20 minutes to half an hour before they were ready for use.

Process

This is the process which I used, based on the components as detailed above.

1. Soak your seeds overnight, or at least 4 hours in water then drain. I used 2/3 of a tablespoon of mung beans, I tablespoon for chickpeas and green peas, and a teaspoon for smaller seeds like brassicas (broccoli, cabbage, Kale etc.). In the book they use plastic cups but I used recycled glass food jars.

2. Add 1.5 cups of the pre-soaked soil mix into the tray and smooth it out, and top with pre-soaked seeds and smooth them out so that they are in a single layer, and covering as much of the surface of the tray as possible.

3. Cover the seeds and soil with the pre-soaked newspaper cover, pushing it down where required so that it is in direct contact with the seeds being sprouted.

4. Place them in a dark space for 4 to 5 days. Check the periodically to make sure all is well and that they are not drying out. We have a couple of bookshelves with a closed in bottom cupboard in our lounge room, so I elected to clear out the top shelf in the cupboard of one of them and set up the filled containers in there.

5. Once the seeds have sprouted and come up 20mm – 30mm, you can remove the newspaper cover (which will be supported on top of the sprouts at this point) and place them on a windowsill to green up. I placed ours on the dining room windowsill which gets very little (if any) direct sunlight at this time of the year due to the cover over our back deck.

6. Leave them for a further 4 to 6 days, depending on the point at which you want to harvest, it is likely that you will need to water them during this time, which can be done with a small watering can, watering the soil rather than the sprouts, just to the point where the soil is damp, not wet or sludgy. This might not take as much water as you think, because due to the lack of drainage holes, all the water you put in will eventually be absorbed by the soil.

7. Then harvest with scissors by cutting the sprouts off above the soil surface. Discard the roots, soil etc. into the compost or a garden bed and start again.
The sprouts harvested can be combined with other sprouts and veggies to make a fresh salad every day, included in a stir fry or as a part of a Vietnamese rice paper roll. The sprouts are very versatile, full of vitamins and minerals, and just plain crunchy and tasty!

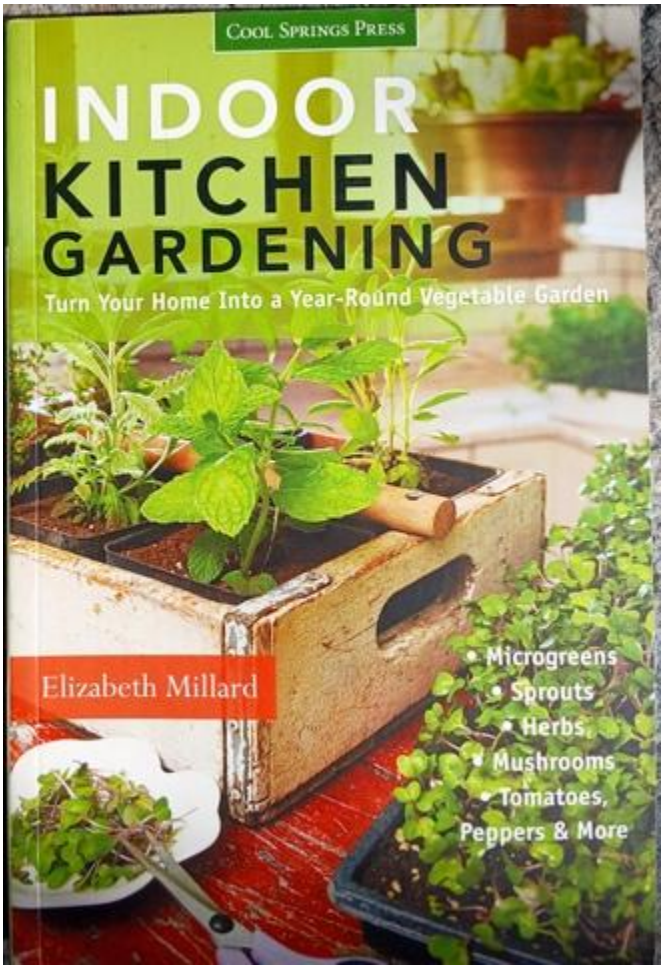
Results

In general I was very happy with the output of our little sprouting experiment, usually including the harvested sprouts with lunch, as part of a sandwich or wrap made with homemade tortillas. If there was one less than satisfactory element for me, it was that when sprouting peas, the cotyledons remain on the ground and when the sprout is harvested they are not included. This is as opposed to jar sprouting where they are part of what is eaten.

Apart from that it worked pretty well!

3.2 Growing Seed Shoots

I bought and read a book recently called 'Indoor Kitchen Gardening' by Elizabeth Millard and in it she describes growing 'shoots'. The idea is similar to 'Soil sprouts' (see above) but also with some differences. She suggests growing pea shoots, popcorn shoots and sunflower shoots. While I am not sure of how sunflower shoots would taste, I thought peas were worth a go and as for popcorn, that was a new one on me so 'Challenge accepted!'



The Process She Describes

The idea is to soak the seeds to be shooted (or is that shot?) overnight, then to layer them on top of a tray containing growing medium, quite closely together but not touching, it may delay germination. She says to cover them with another tray, to be removed once the seeds start to sprout. Once they start to sprout, remove the tray and expose them to light (artificial or natural) and let them grow up to about 150 to 200mm

and then cut to harvest. Watering can be done by spray or placing the whole thing into a sink with a bit of water in it, and letting the water soak up from the bottom.

What I Did

The Seeds

Whatever you do the seeds you start with must be high quality and suitable for sprouting/shooting and therein hangs a tale!

I have previously bought, sprouted and eaten dried pea seeds available from the supermarket, but it had been a while, so I decided to pick up a new bag, to make sure they were fresh and giving me the best chance of success. The brand I use is an Aussie one – 'McKenzie's Dried Peas', designed to be used in homemade soups and casseroles so they obviously have no untoward chemical coatings like fungicides or whatever. I picked them up and brought them home and just happened to be looking the bag over

when I spied a notice in very small print that said “Not Suitable for Sprouting”. What the?! I didn’t remember seeing this before, so I checked an old packet or two I had hanging around and sure enough, the same little sign! Needless to say, I sent off an email to their customer service department immediately but I received no reply. I have been eating these as sprouts for a while with no ill effect, but if you are going to use their product, you have been warned!

Anyway, also to have fresh seeds, when visiting a packaging free store, I picked up a glass jar full of organic popcorn, working on the idea that if the shoots didn’t work I could always pop them and eat them as homemade popcorn. Winner!

The Planters

To grow my seed shoots I used a couple of black plastic standard seedling trays which are 395mm long x 290mm wide x 50mm deep. I placed them in my agricultural cat litter trays which are 415mm long x 315mm wide x 70mm deep, which had about 20mm of coarse sand in the bottom. The idea was that the cat litter trays would allow me to

water from the bottom (so not to displace anything) and prevent water spillage onto the furniture because I was growing them inside and the sand would act as a bit of a water reservoir.

The growing medium I used was my standard seed raising/potting mix which consists of (by volume) one part coarse sand, two parts sieved compost (worm castings can also be used) and three parts of cocopeat. This was filled into the seedling trays almost up to the top.

Seeding and Shooting

I measured out a half a cup of the peas and popcorn seeds and then soaked them in a container overnight. In the event, while the popcorn fitted well into the growing tray, due to the expansion of the pea seeds as they hydrated they took up a bit more room and I had some left over.

Once soaked I placed the peas and popcorn on top of the growing medium, distributing them as uniformly as I could, which in the end wasn't very, but what are ya gonna do? I then added water into the cat litter trays under the seedling trays until the water level was about a centimetre up the side of the seedling tray and then, just to be sure, I gave

both trays a spray of water. They were both placed on the bookshelf nearest the window in my office.

The original book specified that the seedling trays should be covered until the seeds started to germinate. To be honest I didn't see the point and didn't bother, and things still worked fine!

They say that in a dry environment giving the seed trays an occasional spray with water helps to keep them hydrated and prevent drying out, so I did give the seeds a spray once or twice a day.

Peas germinating

Popcorn germinating

The peas started to germinate after a couple of days and the popcorn took a few days longer. Neither sets of seed germinated all at once, but slowly over time. This is a good thing! The early germinators can be harvested when they got to the right stage, allowing the slower ones to come through later, thus ensuring a second and possibly even a third harvest before needing to start again.

As the shoots grow, they will bend towards the light and since mine were sitting next to the window on top of a bookshelf they certainly did. To get a bit more even growth pattern I rotated the trays through 180° every day, and that seemed to help.

Harvesting and Eating

Harvesting is simply a matter of taking a pair of scissors and cutting the shoots off when they reach the desired height a centimetre or two above the growing medium, which for the peas works out to 150mm to 200mm for us, and the popcorn at about 150mm when they are nice and tender.

I find that both go well in a stir fry and some of my first harvest I stir fried both together and tossed in a bit of soy sauce and ate them just by themselves. I found them to be quite palatable. In combination with other veggies or whatever and they do add flavour and texture to the stir fry but also are good when stir fried with soy sauce and then put on top of a soup noodle. The pea shoots are not too bad as part of a salad sandwich and the popcorn shoots are also OK, but if they get too long they can get a bit 'grassy'.

Just for fun I tossed a few of each to the chooks. When I tossed in the pea shoots, they gave me a very sceptical look and didn't show much interest, but they knew what to do with the popcorn shoots!

3.3 Growing and Using Wheat Grass

Back in the '80s I had a bit of an interest in alternative medicine, and I came across a book called "The Wheatgrass Book: How to Grow and Use Wheatgrass to Maximize Your Health and Vitality" by a lady by the name of Ann Wigmore. I bought a copy but did not find the thought of actually swallowing wheatgrass juice to be all that attractive, so I never really got into it. Plus, it was touted as the cure for a long list of diseases, which sounded dodgy at best. (I went looking for the book recently but couldn't find it so I must have gotten rid of it in the intervening years.)

There are studies available on the net that allude to the possibility of good things coming from consuming it. From eliminating toxins and helping digestion to boosting the immune system and helping with diabetes and even cancer, but the reports are usually tempered with the word 'may' and end by saying that more research is needed. What seems clear cut is that wheat grass juice does contain calcium, iron, magnesium, phytonutrients, 17 amino acids and vitamins A, C, E, K, and B complex, plus some other bits and pieces. So it seems that it is a bit of a vitamin pill, contained in green sludge. Winner.

We keep organic wheat grain around which we use to grind for flour, so we have a ready supply of the wheat grass raw material and so wheat grass juice would be considerably cheaper than vitamin pills should we ever need them. That assumes I could stomach the stuff (it has long been an assertion of mine that these things are good for you only if you can keep them down) so a small-scale experiment was in order. I have seen a number of suggestions about growing the stuff, but here is what I did, and it appeared to work OK –

1. the container I used was a plastic takeaway container, the bottom of which I punched some holes in using a pad punch, to allow drainage. There was a depression running around the edge of the bottom of the container which I left intact so that it could retain a bit of water as a reservoir. Probably not critical, but that was my thinking at the time.

2. Into the container I filled my standard seed raising/potting mix which consists of (by volume): one part coarse sand, two parts sieved compost or worm castings and three parts cocopeat. Mixed all together and then placed in the container until it was almost full.

3. I soaked about a quarter cup of wheat grains (berries?) overnight, drained them, rinsed them again and placed them on top of the growing medium as evenly as I could, which wasn't very! Once they were in place I gave the whole thing a water spray and placed it into my window farm.

4. After about six days the sprouts were up to about 150mm tall so I harvested them with a pair of scissors and then had to work out how to turn wheat grass into juice. There are specific juicers to do just that, but I don't have one!

5. I decided to use the 'bullet' thing that came with our food processor. The harvest weighed 20grams, so I placed in the bullet with ¼ cup of water, assembled things and put it in place. When I turned it on there was plenty of whizzing, but nothing happened. I added another ¼ cup and this time it worked well, filling the bullet with green sludge (sounds appetising, doesn't it?).


KENWOOD

6. I then filtered out the remaining wheatgrass juice from the residue by placing the output of the bullet onto a very fine mesh, home-made veggie bag which was placed in a glass. When the juice was strained out, I squeezed the bag to coax out the remainder of the juice, scoring me half a glass of the stuff, with the green fibrous residue going into the compost.

Filtering

Fibrous residue filtered from the sludge

Yum Yum!

7. The original wheatgrass plants continued to re-grow and were ready for another harvest within a week or so.

So, how did it taste?

Well, it wasn't disgusting…….but it wasn't the greatest thing I have ever tasted either. I think that over time, and maybe with the addition of ice, or some kind of flavouring agent, I could get used to it.

There are some other mild concerns which I read, that consuming wheatgrass juice can cause nausea and difficulty in swallowing (the wheatgrass juice) and contamination with 'microbials' is also possible. So just be aware that the consumption of wheatgrass juice, particularly at the start, is not going to be an unalloyed pleasure. The people who know suggest one way around this is to consume it in the morning, an hour or so before eating anything. Just sayin'!

But wait, there's more!

If, by some chance, you grow your wheatgrass for juice but find you just can't choke it down, all is not lost. An alternative name for wheatgrass is 'cat grass' so you can share the produce with your furry feline friend, particularly if that friend is an 'indoors' kind of cat.

There you have it, if you want to grow some wheatgrass, it is quick, easy and cheap to grow, so everybody (even your cat) wins!

4.0 Microgreens

4.1 Introduction

Have you ever grown sprouts? If you haven't then I recommend you read the previous articles in this eBook, if you have you will know where I am coming from. Sprouts are seeds that have germinated and put in a bit of growth, then we eat them. Microgreens are the next step along the plant growth continuum, in that the seeds are planted into a growing medium, germinate, produce roots and a couple of leaves – then we eat them.

Why bother?

A reasonable question! If you are a flat or apartment dweller but still want to grow fresh veggies, if you want to include home grown fresh harvested veggies in your diet, if you want to improve (I resisted using the word "supercharge" here, otherwise I may give the impression I watch too much crappy TV) your diet by including the vitamins and minerals that fresh veggies provide; microgreens may be for you.

They don't need lots of space, fertiliser or water and are easy to grow; if you put together your microgreen set up the way I describe below they will need even less care and you won't have to worry about going away for a couple of days to a week and leaving your microgreens without water, you will still be producing fresh vegetables.

Microgreens can save you money as well as reduce your environmental impact by reducing those food miles (or kilometres) down to just feet, and if you can't get to the shops for any reason, you will still have a supply of fresh greens for the table. Let's face it; you would have to be utterly crazy NOT to get stuck into microgreens. OK, OK so I do get a bit carried away.....read the article though and then give it a go, you won't be sorry.

A Word of Caution

You just knew that there was a fly in the ointment somewhere, didn't you? At least this one is a small one. In the same way as you would when getting seeds for sprouting,

make sure that they are designed for sprouting and/or microgreen production or consumption directly by people in some form. This is to make sure that they have not been contaminated with fungicides or other pesticide to reduce losses when sown in the ground, because these chemicals could make you sick. Also with some vegetables such as tomatoes, the plant is actually toxic and so not suitable for rowing as a microgreen (although the fruit is fine obviously) but if you stick with the plants in this article you will be fine.

4.2 Growing Microgreens

Where do you get the seeds?

One obvious place to get your seeds are from a seed supplier that supplies sprouting seeds, preferably one that specialises in open pollinated, organic and/or heritage seeds because these are people worth dealing with. As mentioned in other articles, I tend to buy most of my seeds from Eden Seeds in Queensland, their website is in the links area. That is not the only avenue though, you can pick up packets of seeds that are destined for human consumption directly but that will still sprout; for example the old "blue boiler" dried peas that are used to make mushy peas with. The can be bought from the likes of Woolies and Coles in the soup section, quite cheaply and have a very good germination rates. Think about sunflower seeds in the same way, even if they do come from the bird seed section.

If you have Asian food shops near you, there are a number of seeds that are used to make curries and other dishes that can be bought quite cheaply and will germinate to give you wonderful microgreens. Examples of these seeds include onion, mustard, fenugreek and mung beans, available in comparatively large amounts for a few dollars, good value in anyone's language.

If all else fails, or you want to be that much more sustainable/self-sufficient (self-sustainable?), you can save your own seed and grow microgreens from that. There are

circumstances where you might have produced seed that you don't want to use, say if you have a number of different varieties of brassicas flowering at the same time.

Brassicas are notoriously promiscuous and the seed you save from an individual plant may not breed true to the parent you harvested it from. With microgreens you are only going to grow it up to a few leaves before consuming it, it won't matter if was a cabbage or broccoli or a cabboli (a cross between cabbage and broccoli....), at that stage it will look (and taste) the same.

What plants are suitable for growing as microgreens?

The following plants can be grown as microgreens for human consumption –
Herbs such as – rocket, basil, coriander, mustard
Vegetables such as – Asian greens (mizuna, mibuna, tatsoi, pack choi) Beets, brassicas (broccoli, cabbage, kale), celery, garden cress, endive, lettuce, peas, radish.
Grains such as – barley, oats, wheat, linseed, buckwheat, sunflower

What do you need to be able grow microgreens?

A seedling flat - Seedling flats are available from nurseries and if you have bought lots of seedlings in the past you may have a couple floating around the house or garden, I sure did. Otherwise you can buy them new or make your own out of wood, the commercial ones are usually 350mm long (outside measurement) by 290mm wide (outside measurement) by 60mm deep and this is a handy size for lots of reasons.
A kitty litter tray - these are available very cheaply at junk shops and are usually around the following dimensions – 290mm wide (inside measurement) by 400mm long (inside measurement) by 75mm high, so they will fit your seedling flat inside them.
A piece of timber the same size as the flat, with a handle to act as a press.
Some **coarse river sand**.
Some growing medium – I use the same mix that I make for seed raising mixture basted on 3 parts cocopeat, two parts of worm castings and one part of coarse river sand.
Scissors for harvesting.
The **seeds** you want to grow into microgreens.

The process –

1. Take your kitty litter tray and put one to two centimetres of the coarse river sand into the bottom of it and smooth it over so that it is reasonably form and level, then put water in so that it sits a few millimetres above the surface of the sand.

Kitty litter tray complete with sharp sand

2. Take the seedling flat and fill it with your growing medium and tamp it down to a firm, flat surface in which to sow your seeds.

Seedling flat sitting in the kitty litter tray

3. Sow your seeds thickly but evenly over the top of the seedling flat, this will be easy with the big seeds but a bit more difficult with the smaller seeds. There will inevitably be some unevenness in your sowing and some of this can be evened out by spreading areas too thickly sown out with a finger or adding a bit more seed in areas too thinly sown.

4. Using your press or tamper, tamp down the surface of your flat to ensure good soil to seed contact and cover the seed with either a thin layer of growing medium or newspaper to reduce evaporation.

Growing medium added and being tamped down

5. Now place the sown flat into the pre-prepared kitty litter tray. The water in the kitty litter tray will wick up into the growing medium in the flat to keep the seeds moist without water logging them, the coarse sand will support the flat and act as a water reservoir so that there is less chance of your microgreens drying out. Also, by watering directly into the litter tray rather than the flat you won't be washing smaller seeds out when you water.

Seedling flat sown (too thinly) with blue boiler pea seeds

6. If you do elect to use the newspaper, lift it up every day and check on the germination of your seeds, remove it totally once they have germinated.

Harvesting the peas with scissors

7. Once the seeds have germinated and grown to the point where there first two true leaves as opposed to their cotyledons or seed leaves, they can be harvested. This is done by cutting them off at just above soil level with a pair of scissors, then once they are harvested wash them and remove any soil, seed coats or rotten leaves before placing them into a container ready to go into the fridge.

The freshly harvested microgreens can be used in salads, sandwiches, on top of soup as a garnish or almost anywhere you would use salad leaves, but they will give you a much greater variety of flavours and textures. You could even develop your own microgreen mixes by combining different brassicas, different Asian greens or a mix of vegetables and herbs; whatever takes you fancy to make your own personal microgreen mix.

4.3 Another Take on Microgreens

If you have already read the previous microgreen article you will know what a wonderful, practical and tasty source of nutrition microgreens are as well as having a reasonable idea of how to produce them. If you haven't, go read it first, I'm not going to repeat it all, except the production bit!

A lovely container, found cheap at the Sallies!

Producing microgreens in large amounts can be a good thing if you are using them heaps but what if you like small amounts of variety? I was wandering through our local Salvation Army shop when I came upon a round, plastic microwave cooker that was divided up into three equal "wedges" (for want of a better term). It looked perfect for raising microgreens and for the vast price of $1.50 I was able to purchase it; and for another $1.50 I was able to get a plate to go under it to catch any water draining after irrigating them. It was big enough to produce three loads of microgreens neatly separated from each other and the lid was high enough to allow germination and some growth before it would need to be left off. It was also decorative enough not to look out of place in the kitchen. Perfect, reusing at its best.

Container with holes drilled in the bottom

The first trick when I got it home was to grab hold of a very sharp 6mm or so drill and drill a whole stack of drain holes in the bottom to stop the microgreens getting wet feet. The plastic is quite brittle and I figured could easily break up even though it was reasonable thick, so I used a very sharp drill bit and was comparatively restrained in the pressure I applied to the drill, letting the bit do the work. In the end all was well and I was able to drill in all the required holes without destroying the container.

Test fitting the plywood hand press

It appeared to me fairly obvious that, due to the shape of the container, a simple rectangular lump of wood to press down the growing medium, seeds etc was not going to work, so I fished out a piece of 10mm thick ply wood and sketched the shape of one of the wedges on it. After cutting it out using my small band saw (it could just as easily have been done by hand with a fret saw) and sanding it back to smooth of the rough edges I tried it in place. It fit! Not bad for someone almost without manual skills. I found an old knob off a cupboard door, screwed it on for use as a handle and we were away.

Growing medium in place and pressed

Using the same growing medium that I always do (1 measure of coarse river sand; 2 measures of worm castings and three measures of cocopeat) I filled up each of the wedges to the top and then pressed them down with the little wedgie press. I then sowed the seeds on top quite thickly, one type in each wedge – fenugreek, mung beans and lettuce – covered with another layer of growing medium and again pressed down to ensure good soil to seed contact. I then watered the whole shebang with a sprinkle nozzle on a PET drink bottle, replaced the clear lid and stood back to await the fire works!

3 types of seeds sown, mung bean, fenugreek and lettuce

And they weren't long in coming! Unfortunately the top layer of growing medium at about 5-6mm thick was a little too thick and well tamped down so that when the thickly sown seeds germinated, rather than push through the top layer as I expected they lifted it up in one solid layer. It looked a bit weird but in the end it was only a minor inconvenience and after being broken up with my fingers and watered in, all was well.

The seeds beginning to germinate

Things were moving along quite well and all of the microgreens were growing strongly but we had to go away for the weekend and, with nowhere else to put them, they stayed on the side of the sink in the kitchen with the curtains closed. This resulted in them not getting enough light so they became rather long and leggy, but this did not seem to interfere with their flavour. The lettuce did take the longest to recover, the other two being thicker with nicely flavoured stems.

A bit leggy, but good!

This was a great way to grow a variety of microgreens in a small area, right in the kitchen where they were going to be used. Sometimes it can be a pain to have to walk down to the greenhouse to harvest some microgreens for a meal, but my lovely partner in the sustainable life would not be enthused over numerous flats full of growing things cluttering up the kitchen either. This way we could have a happy household and microgreens too.

Mung bean microgreens as a garnish on homegrown veggie stir fry with beef

4.4 Experiments with baby spinach

We have seen a couple of recipes recently that required baby spinach leaves, usually to go in wraps and the like. I refuse to buy the over-packaged stuff but figured it was just another type of microgreen so I would have a go at growing it myself. When I came to do a bit of research on it, there was remarkably little specific data on how it baby spinach be grown in a home-based setting, either on the 'net or in my books. It seemed to me it was time for a bit of experimentation!

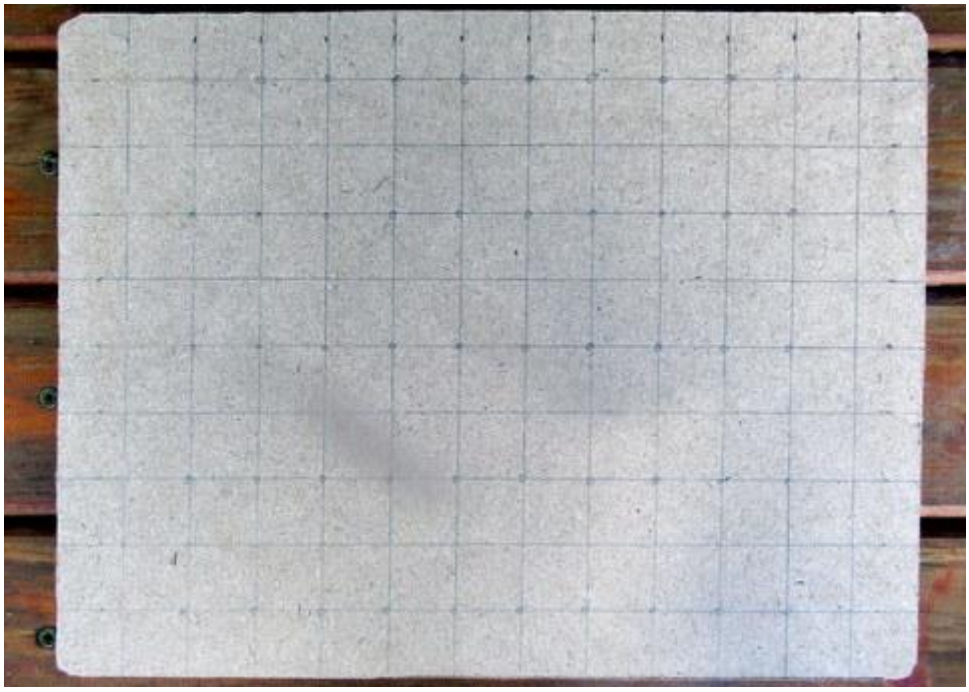
My thoughts were to use a seedling tray (348mm x 290mm x 55mm black plastic seedling trays used by nurseries, hardware's etc. to hold seedling punnets), fill it with my standard seed raising mix and then plant it out. Once the tray was prepared I would sit it one of my sand filled cat litter watering trays to keep it damp for germination and growing.

It all seemed to make sense, but I really had no idea how close of far apart or even how deep to plant the seeds, as information either wasn't there or was conflicting. So what I

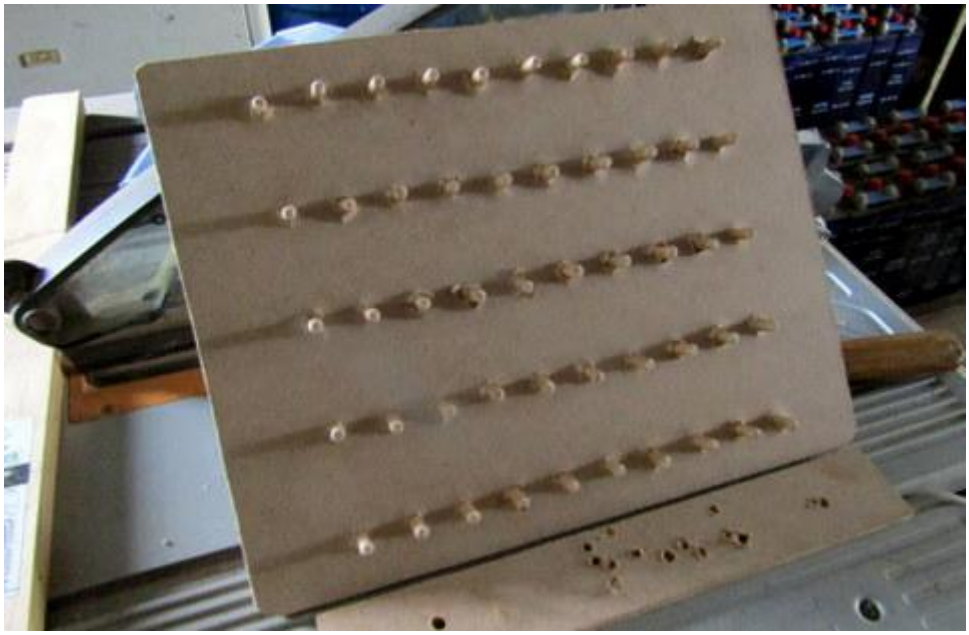
decided to do was make up an adjustable rig to put holes into the seed raising mix at a pre-determined points to see what worked. That way, what I was doing would be reproducible once I worked out how best to do it.

Making the Sowing Rig

I had some 6mm MDF (and, yes, it was left over from a previous project!) so I cut it to 325mm long by 250mm wide and rounded off the corners so that it would fit more neatly into the top of the seedling tray. To cut it I used a hand saw but used my small band saw to round off the corners. I then sat down and did some calculations (clearly not my strong suit) and worked out I wanted to try to fit 100 baby spinach into the seedling punnet. I ruled up one side and one end into 25mm graduations with a pencil then ruled up the back of the MDF into 25mm squares. The idea was that a seed would be placed at the corner of each square. At 130 total squares this meant I could leave some room at each end of the seedling tray.



Setting out



The next challenge was to work out how I would arrange it so that I could push a hole into the seed raising mix at the appropriate places, into which I would then plant a seed. For years I have had a pack of 50 fluted timber dowels (6mm in diameter x 32mm long) which were designed to be used in timber joinery but I hadn't used for anything. Only 50 you say? When I needed 100? Well I had an obvious answer, I would use the aforementioned band saw to cut them evenly in half!

Have you ever tried to cut a whole stack of 6mm x 32mm cylinders, exactly in half, without losing a finger in the process? Anyway, through an amazing coincidence after recalculation it turned out that the best spacing for the seedlings meant I would only need 50 of the dowels. Thankfully the original pack actually had 54 dowels so I was able to carry out some (mostly bloodless) practice with the band saw but still have enough dowels left over to complete the job properly.

I drilled 50 7/32" holes (sorry, I have had my drills for many years and they are pre-metric) into the MDF board at designated places. Drilling 7/32"holes for the 6mm dowels gave me a firm enough fit that they would stay in place without glue, but not so tight that they couldn't be tapped in with a hammer. I have a bench drill and used that so that the holes were as close to 90° to the surface of the board as I could get them, pretty much. The new deal actually worked out better than my original idea of gluing

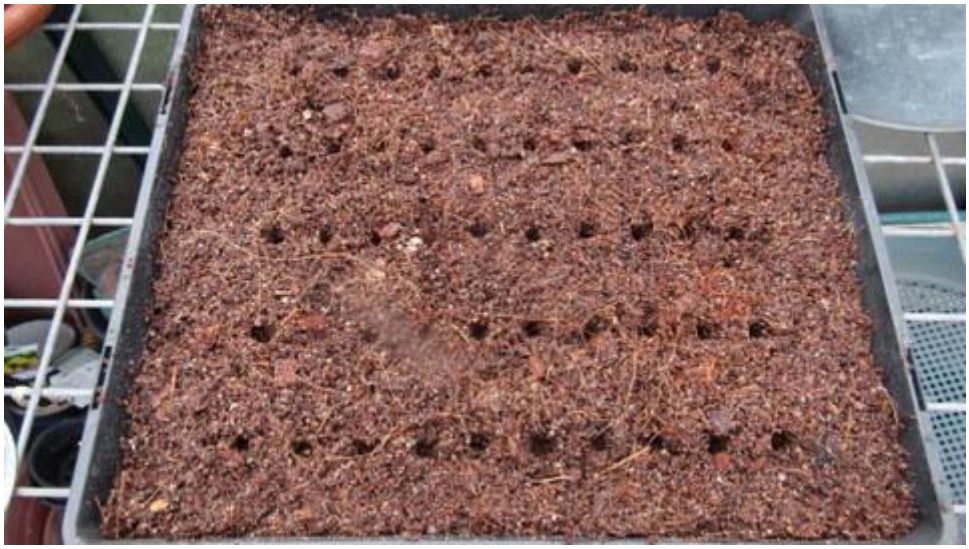
the dowels into the holes, because it meant that the length of the dowel (and hence the depth of the planting hole) was adjustable.

In some of my reading it had appeared that the spinach seeds needed to be sown 12mm deep, which seemed a bit deep to me, but anyway. By placing the rig on a flat surface and applying a hammer gently to the back I was able to set the dowels all at 12mm.

The Set Up

I made a batch of my seed raising mix up, which is covered elsewhere but for simplicity is basically a mix of 1 part coarse sand, 2 parts worm castings and 3 parts cocopeat (horticultural coir) all by volume, I use a 500ml plastic take-way food container as the measure. I mixed it around, making sure it was nice and damp then loaded it into the seedling tray and levelled it out a few mm below the level of the rim, then pressed the sowing rig down on top, to flatten and compress the seed raising mix and press in the holes. Then into each hole I dropped a spinach (English medamia) seed and covered each seed with a bit more seed raising mix.

Pokin' the holes



The holes!

Comin'up!

The seedling tray, seed raising mix, seeds and all, was then placed into one of the cat litter trays three quarters full of sand and water, to ensure the seed raising mix was damp, but not sopping. I kept the water up in the cat tray manually, the seedling tray was too large to allow me to put the upturned bottles in as I usually do in capillary beds to provide a water reservoir.

Results

The seedlings started to emerge about a week later, just not as many as I had hoped for. We got a total of 17 plants out of the 50 seeds of which 14 plants made it to harvestable size, about 2 and a half weeks after the seedlings emerged.
It is amazing what you find out when you do things for yourself! I had assumed that the baby spinach would be harvested in the way that most microgreens are – once they have achieved the required size you take a pair of scissors, cut them off and serve them up in true MasterChef style, followed by dumping the growing medium and starting again from scratch.

Not so! We don't have a huge number of plants but I have been able to harvest half a dozen, to a dozen leaves every day or two to have on our lunch since they got to harvestable size. The supply doesn't seem to be slowing down yet either!

The Future

I am going continue and see how long we can push the harvest for but also about a week ago I set up another seedling tray, but this time I modified the sowing rig so that the seeds would be sown closer to 5mm – 6mm deep.

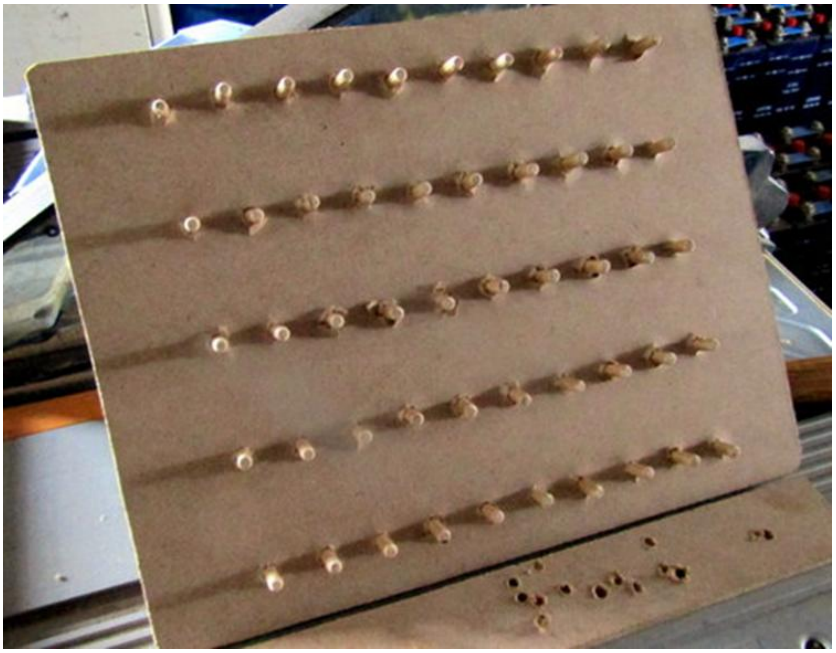
The new one - Comin' up!

The new tray has been remarkably productive (see above) with a hugely increased germination rate and continued cropping. It seems that the sowing depth of 5 – 6mm is the way to go, but to be fair, even the original tray is still producing on a regular basis a couple of months later. Another difference was I didn't put as much sand in the kitty litter tray the spinach tray is sitting in. This makes watering easier, into the gap between the two trays, and also allows some liquid fertilisation to go in with the water.

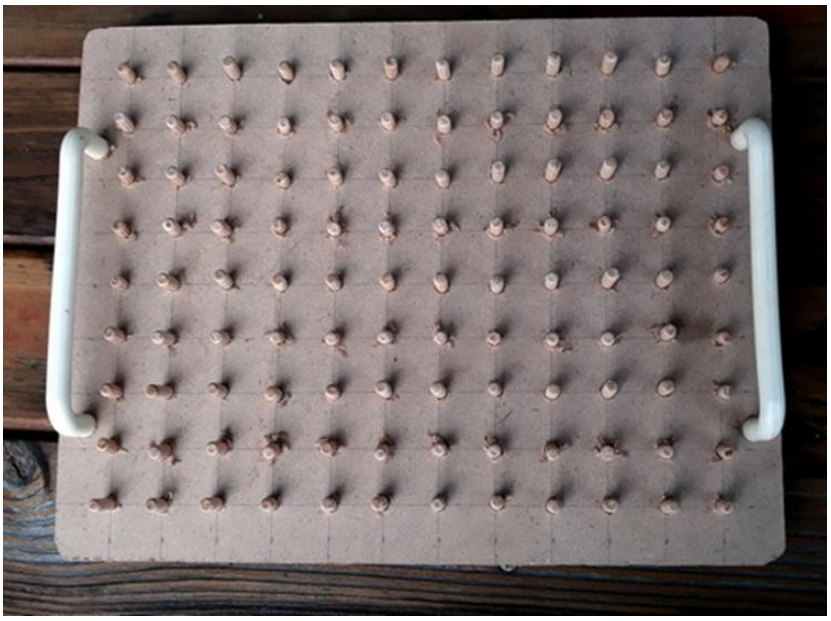
I think this has been a great proof-of-concept, if you don’t have much space and want a regular, if small, harvest then this is one way to get it!

4.5 Making a microgreen spacer

This little sowing aid starred in above article on baby spinach, and it worked pretty well after some initial mental gymnastics, but after using it some more I got to thinking that it could be more flexible if I drilled and inserted extra pegs into the spaces I originally did not drill.



The Original Construction



After Revision

The new deal

So, with the pegs in place and working well, I decided to drill the extra holes anyway. I have had several goes of growing microgreens like peas, which you then cut off once they are a few centimetres long and toss into stir fries or what have you. My main problem has been inefficient use of space because I always seem to wind up with some parts of the seedling tray pack up tight, with other parts being very sparsely populated. The idea to get around this was to drill the original holes and place pegs in them, which would give me an evenly spaced coverage of 108 plants per seedling tray.

This would not cause problems when setting up more baby spinach trays because I could always hammer the pegs up where I did not want holes for baby spinach, or remove those pegs entirely, or (yes, it just occurred to me) make the full set of holes and only put the spinach seeds in the appropriate holes. Also, the pegs were still adjustable so I could put in shallow holes for the spinach and deeper holes for the (larger) pea seeds. Works for me!

In the end it turned out to be a fairly simple matter to drill the required holes using the bench drill, with the board supported from underneath on some waste DAR pine. That way I could drill the remaining holes without having to pull out all of the existing pegs. I then just supported each side of the board and hammered in the new pegs. To improve its ease of use I dug around and found a pair of old plastic drawer handles and fitted them on each side.

With the spacer now complete, I didn't waste time and prepared a seedling tray with seed raising mix, then adjusted all of the pegs to 20mm long by placing both sides of the board on some 20mm thick timber and hammering all the pegs down until they touched the bench. It was a breeze with the new handles to press the spacer down onto the top of the seed raising mix and then lift it up leaving 108 precisely spaced 20mm deep holes in the mix, ready to be filled with pre-soaked peas. Winner!

5.0 Resources

5.1 Sprouts and Sprouting

Regardless of what a fascinating subject sprouting is, there are very few books that cover sprouting alone, usually the stuff on sprouting is part of a larger work, so I have included a few of those that are worth following up.

Fresh food From Small Spaces – R. J. Ruppenthal – Chelsea Green Publishing Company (US) 2008 ISBN 978 1 60358 028 1 – Chapter 7 (pp79-95) covers sprouting pretty well, talking about a number of techniques including wheatgrass and even provides some recipes.

Making Your Own Home Proteins – Evelyn Findlater – Century Publishing (UK) 1985 ISBN 0 7126 0817 6 – Chapter 4 (pp113-134) covers sprouting of beans, grains and seeds, talking about the types of seeds to sprout, using a commercial sprouter or the jar method and even provides some recipes for the finished product. Actually the whole book is a gem if you can find it.

Sailing the Farm (a survival guide for homesteading on the ocean) – Ken Neumeyer – Ten Speed Press (US)1981 ISBN 0 89815 051 5 – (pp85-102) this one is for those of you who thought my library was anything less than comprehensive. The book covers sprouting using a tray or jar, tray an towel, it covers a number of seeds that can be used for sprouting including some unusual ones. This is an interesting book!

How Can I be Prepared with Self-sufficiency and survival Foods? – Isabel Shipard – David Steward (AUS) 2008 ISBN 978 0 9758252 3 5 – (pp92-97) The book covers sprouting using the jar method with some discussion of the types of seeds to use. There are also a series of good colour photos to illustrate the process.

Escarole in the Bedroom (Growing Food plants Indoors) – Jack Kramer – Little, Brown and Co. (US) 1977 ISBN 0 316 50314 2 – (pp52 -58) This is an old book but worth getting if you can find it second hand, it covers the types of seeds used for sprouting and how to grow them with a couple of innovative techniques. A good book if you want to grow any of your food indoors.

The Speedy Vegetable Garden – Mark Diacono and Lia Leendertz – Timber Press (US/UK) 2013 ISBN 978 1 60469 326 3 – This one is a bit different from the others, it covers a number of ways of getting the quickest harvest you can manage. The book starts off with sprouts and 'soaks' and then moves on to microgreens, edible flowers, cut-and-come-again salad leaves, and quick harvest vegetables. Each section taking longer to get a harvest. There is one page generically about soaks and sprouts then a series of entries covering specific seeds, providing a bit of info on cultivation and a recipe or two. The microgreen section is set up similarly with not a huge amount of data

on either the sprouting or microgreen process. The book has lots of colour photos, usually on every other page.

There are some books that do cover sprouting alone –

Sprouts the Miracle Food – Steve Meyerowitz – Sproutman Publications (US) 2010 ISBN 1 878736 04 3 – There is quite a bit of detail on sprout growing in this one, but the author has his own sprouting business (Sproutman) and tends to push his own sprouters, seeds etc,. There is quite a bit of DIY info too, though. There is lots of stuff on types of sprouters, how to sprout, seeds and how to store them, nutritional values for the sprouts, how to store the sprouts once they are harvested etc. He does talk about medicinal qualities of sprouts, but it would probably be worth checking out any claims before accepting them. There is also stuff you might not necessarily think about, like sprouting using purified water and which purifier to get, using hydrogen peroxide to prevent mould and mixing seeds to get a more diverse sprout harvest. There are a few black and white photos and line drawings.

Sprouting Beans and Seeds – Judy Ridgeway – Century Publishing (UK) 1984 ISBN 0 7126 0323 9 – The book goes through why you should eat sprouts and then gives a detailed description of the sprouts which can be used for sprouting covering appearance and flavour, nutritional value and uses for 25 species. There is then a comprehensive chapter on growing sprouts at home followed by a large selection of recipes using sprouts cold, and large selection of recipes using cooked sprouts. There a few line drawings but no photos.

Year-Round Indoor Salad Sprouting – Peter Burke – Chelsea Green Publishing (US) 2015 ISBN 978 1 60358 615 3 – The book is a comprehensive exploration of what the author calls ‘soil sprouts’ which to me appears to be a cross between sprouts and microgreens. Their chief advantage is they need no direct light and can provide fresh food when there is 6 foot of snow on the ground. The book starts out (part 1) with a review of the advantages of soils sprouting, how they differ from traditional sprouts and microgreens and tools and accessories required. Part 2 is a detailed treatise on how to grow soil

sprouts and part 3 covers which seeds to use and reviews them seed by seed and even includes some recipes. A fascinating book with lots of colour photos.

Sprouts and Sprouting – Valerie Cupillard – Grub Street (UK) 2007 ISBN 978 1 904943 90 7 – The book starts out with why we should eat sprouts, talks about wheat and barley juice, then covers the general sprouting of seeds. The book then gives a series of detailed instructions on how to sprout each of the following seeds – alfalfa, hulled sunflower seeds, lentils, quinoa and fenugreek. Sprout (essene) bread is also mentioned. The rest of the books is taken up with a series of sprout based recipes around appetizers, sauces, raw dishes, main dishes, dessert etc. Lots of colour photos including one every other page in the recipe section.

5.2 Shoots

Indoor Kitchen Gardening – Elizabeth Millard – Cool Springs Press (US) 2014 ISBN 978 1 59186 593 3 – This book covers quite a variety of crops and methods for indoor food growing. The book starts off with general thoughts on growing edibles indoors such as finding space, getting started and common problems. The second section addresses microgreens, shoots herbs, wheatgrass, sprouts and mushrooms, with the section on shoots covering pea, sunflower and popcorn shoots running from page 84 to 101. The shoots section discusses the best options for shoot growing, containers to use, preparatory work, planting and care, troubleshooting, harvesting and preservation. The book has lots of colour photos.

Year-Round Indoor Salad Gardening – Peter Burke – Chelsea Green Publishing (US) 2015 ISBN 978 1 60358 615 3 – The book is broken up into three parts, the first part titled: Fresh Greens All Year, talks about the theory behind soil sprouts, ten reasons to use soil sprouts vs traditional sprouts, the difference between soil sprouts and microgreens, and the tools and accessories required. Part two covers the mechanics and details of the soil sprout growing method, trays and planter, fertiliser, planting growing and greening, harvesting and storage. Part three provides a monograph on a

number of seed s and seed mixes, providing the detail on how they are grown and used. This section also provides a number of recipes using soil sprouts.

5.3 Microgreens

Microgreens – Eric Franks and Jasmine Richardson – Gibbs Smith (US) 2009 ISBN978 1 4236 0364 8 – This is a good all-round book on microgreens covering the how and the why with a detailed 10 point description of the process. There is a very detailed section on the types of plants suitable for raising as microgreen and recipes at the end of the book. Commercial production is covered as well as home production.

How to Grow Microgreens – Fionna Hill – David Bateman (NZ) 2010 ISBN 978 186953 765 4 – Another good microgreens book from a bit closer to home it covers the subject more from a home growers perspective and covers a number of techniques for growing microgreens. The author covers a wide range of plants suitable along with growing instructions and information on troubleshooting in the event of problems and she also includes some recipes at the end of the book.

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