Red Sand Cottage – Growing and Storing Food

Food Growing

We grow and store food on just a small part of our land and indoors. Permaculture methods help us to get a lot more food from the same space as conventional gardening. For example:

- A herb spiral creates more growing space than the equivalent flat linear garden space and creates a range of microclimates which enable us to grow a greater variety of produce.
- Forest gardening creates multiple layers both above and below the ground so that it may be seen as having several gardens stacked on top of one another.
- Companion and guild plantings enable us to pack plants closely together in such a way that they help to nourish & protect each other, rather than competing for space, light and nutrients.

One of the biggest challenges we face in our climate is to provide sufficient food in the short growing season to sustain us year round and we have developed a number of methods of doing this. It can be quite hard work at harvest time, but with organisation things can be harvested in the autumn and then picked over, stored and labelled during the quieter winter months. Although the root cellar and stored items can provide a surprising range of nourishing food alternatives during the cold winter, it is really quite necessary to have an indoor growing system going during the winter, and this is quite easy to do. These winter growing methods can be used by anyone who has access to a windowsill and/or a small amount of space.

We deliberately allow a proportion of our crops to go to seed for three main reasons:

- to collect heritage seed for growing next season
- to collect seed for sprouts and microgreens for the winter
- to allow 'perennialising' of annuals

'Perennialising' of annuals is where we avoid sowing seeds of some types of plants, potting compost & seed trays, planting out, etc., by having vegetables, herbs and flowers just 'popping up' naturally throughout the garden randomly. In other words, they are free and involve no work, two things which are particularly helpful to us! Back at 'the Romany Rest B&B' we had a pretty reliable source of such items year on year. This year at Red Sand Cottage, we've got to start all over again, but by next year we should have a range of self-seeding produce. These are a great addition to the perennial fruits, flowers and vegetables and give us more time to concentrate on other seedlings which need our attention. The self-seeded vegetables always seem sturdier and more disease-resistant. In the past, when comparing transplanted tomato plants with the self-seeded seedlings, the transplants seem larger to start with, but are quickly taken over by the self-seeded ones.

Good candidates for self-seeding are:

Tomatoes (particularly cherry), Spinach, Parsley, Dill, Salad Burnet & many other herbs, Celery, Carrots, Leeks and many more - It's the self-gardening Garden!

The Mandala Garden

Back at our previous home the 'Romany Rest B&B' we had created a beautiful Mandala garden in the Fall of 2007 when we had been reading about permaculture ideas and heard about Mandala gardens. We were trying to “reclaim” lawn and turn it into garden, so the idea struck us as being very beautiful and practical and in line with our growing ideas, and we decided to try to make a Mandala of our own.

In the first summer we enjoyed lots of lush growth and jumbo-sized produce. I’ve never seen such large radishes or mangetout peas! It is such a joy to see it coming together and that the sheet mulching has actually worked and things are growing well.

It seemed like the entire Mandala was buzzing with bees, hummingbirds and butterflies. It was a feast for all the senses for its beauty, sounds, fabulous tasting (& supersize!) vegetables and sweet perfume.

Here at Red Sand Cottage we made a start on a Mandala Garden last year, but didn't have time to finish it, so we will be doing a lot of work on it in the Spring of 2011. We intend to have a herb spiral at the centre, and paths radiating out to the edges of the outer circle. The basis of the herb spiral is in place and some mulching and planting took place, but there is much to do. However, things should progress quite quickly in the spring, especially if we can lay our hands on some good mulching material. One thing we have in copious supply is cardboard! We will be sheet-mulching with cardboard, wetting it and adding layers of whatever organic materials we can get. This method of re-claiming lawn has worked so well for us in the past. Digging exposes the soil to UV light which kills the beneficial micro-organisms and sends the earthworms away from the light. Instead sheet mulching allows both of those two to continue their good works in the dark, creating well-aerated, fertilised and healthy soil.

Photographs of progress will follow in due course.

The Forest Garden

By adopting forest gardening principles back in Wales, we became completely self-sufficient in fruit, vegetables and eggs. It didn't take long for us to become sold on the principles and practices which helped to turn a barren mountainside garden into a lush, productive growing space full of wildlife.

When we came to Canada, we left our garden behind, but only after spreading plants and cuttings throughout the village! We decided to start all over again here, although it did seem rather daunting to start from absolutely nothing. After 4 years at the Romany Rest we found ourselves on the move again, relieved that the family who moved in were keen environmentalists and were looking forward to continuing with the Forest Garden.

We obtained some excellent advice and a few plants and trees from The MacPhail Woods ecological forestry project. These were mainly native species like our beloved black Elder, some Red Osier Dogwoods, various Maples, Serviceberries, Wild Apples, Wild Grapes, Hawthornes and two beautiful Witch-hazels. And so the forest garden started to take shape.



Now we begin again at Red Sand Cottage, but not quite from the very beginning as there are already established woodlands here. In the woods there are areas of wild blueberries, wild strawberries, raspberries in clearings, chokecherries, pin cherries, rose hips, wild apple and highbush cranberry. Not bad for a starting point.

We've added currant bushes, blackberries, raspberries, strawberries, rhubarb, josta berries, chives, herbs and perennial vegetables. They all need organising and companion-planting and there will be a great deal of work done throughout our first real growing season in 2011.

The plan is to interplant strawberries with garlic, spinach, chives, peas and borage. This has worked so well in the past. It will be sensible to put the nitrogen fixers in place first wherever possible. Thankfully we live on an island famous for it's wild lupins and alder. If there isn't time to get perennial nitrogen fixers established then we will use peas and beans as a shorter-term measure.

The main thing is to establish which plant cuttings have survived the transplant and the winter and which ones we'll need to grow again from seeds.

A big seed order has been placed for the coming season, though in time we will buy less and less seed each year, relying instead on seed collection, perennials and perennialising annuals (which has worked hugely well for us in the past).

Companion Planting Notes

The following table summarises things which we feel grow well together or don't seem good together. We've collated the companions over the years from our experience, the internet, books and from what people have told us work well together. We use this table to help design our planting schemes:

Crop	Compatible	Incompatible
Apple Trees	Climbing Nasturtiums, Chives deter apple scab & aphids	Not Known
Asparagus	Tomato, Parsley, Basil, Marigold	Onions, Garlic, Gladiolus, Mint, Potatoes
Basil	Repels flies and mosquitoes and attracts bees for Tomato, Pepper, Marigold, Asparagus	Rue, Sage
Beans	Potato, Cucumber, Corn, Strawberry, Celery, Summer Savory, Radish (loved by pole beans), Cosmos Broad bean loves corn.	Onion, Kohlrabi, artichokes, gladiolus, tomato, sunflower
Beets	Cabbage, onions, radish, bush beans	Pole Beans
Borage	Strawberries, lettuce, Tomatoes, Squash, cabbage, roses, caraway, a good mulch, attracts bees, produces calcium, potassium, vitamin C, flowers are edible.	Not Known
Cabbage and Broccoli	Celery, beets, onions, chamomile, spinach, chard, mint, nasturtium, dill, sage, hemp, thyme, mustard greens, cucumbers, peas, rosemary (repels cabbage flies), basil, corn, lettuce, potatoes, carrots, geranium (traps cabbage worms). Use mint as a mulch	Strawberries, pole beans, tomato, pepper
Carrots	Lettuce, rosemary, chives, bean, leek, onions, pea, sage, tomato	Dill, parsnip
Cauliflower	Mint, sage, thyme, beans, oregano, celery, rosemary, radish, chamomile, lavender, onion	Cucumber, Tomato, Strawberries, Peas
Celery	Onions, cabbage, tomato, beans, nasturtium, leeks	Not Known
Chives	Apples, Roses, tomatoes, cucumbers, lettuce, fruit trees, parsley, beetroot, radishes	Peas, Beans, mustard
Coriander	Potatoes, Carrots	Fennel
Corn	Rosemary, peas, beans, tomato, radish, mint, larkspur, marigolds, potato, cabbage, parsley, lupin, pumpkin	Tomato

	melons, cucumbers, geranium, radish, squash, parsnips, Jerusalem artichokes, dill, beetroot	
Cucumber	Beans, Corn, Pea, Sunflowers, Radish	Potato and Aromatic herbs
Eggplant/ Aubergine	Beans, Marigold, potato, marjoram, catmint, pumpkin, peas, tarragon, thyme, carrot, peppers, broccoli, celery, chives, cabbage, lettuce, radish, tomato	Not Known
Garlic	Roses, Raspberries, Lettuce, Beans, Fruit Trees	Not known
Grapes	Hyssop, beans, peas, blackberries, chives	Radish, cabbage
Leeks	Carrots, Celery, Strawberries, Apples	Onions, Peas, Beans, Broccoli
Lettuce	Cucumber, onions, strawberries, borage, chervil, dill, spinach, cabbage, carrots, radish, tomatoes, basil	Celery, cress, parsley
Melons	Corn, Nasturtium, Radish, Beans, Peas, Lettuce, Pumpkin/squash, marigold	Not known
Onions	Summer Savory, beetroot, cabbage, carrot, lettuce, potato, strawberry, tomato	Peas, pole beans, peppers, parsley
Parsley	Tomato, asparagus, celery, leek, pea, rose, basil, chives, carrots, broccoli, corn, caraway	Mint, Lettuce
Parsnip	Onions, feverfew, corn, radish	Lettuce, Tomatoes, Onions, Celery
Pea	Carrots, Radish, Cucumber, Corn, Peppers, caraway, spinach, celery, sage, eggplant, potato, lettuce, cabbage, strawberry, tomato	Potato, onion, gladiolus, chives, garlic, cauliflower, beans
Pepper	Basil, Parsley, Tomatoes, Geranium	Beans Cabbage
Plum	Blackcurrant	Not known
Potato	Horseradish, eggplant, broad beans, corn, cabbage, Brussels, marigolds, watermelon, lettuce, onion, radish, alyssum	Tomato, cucumber, raspberries, rosemary, dill, apples, asparagus, cauli, celery, sunflower
Pumpkin	Corn, marigold, beans, eggplant, marjoram, peas, radish, cucumber, lettuce, mint, nasturtium	Potato
Radish	Nasturtium, cukes, chervil, squash, lettuce, grapes, beans, spinach, melon, peas, beets, carrots, parsnip, pumpkin, cauli, tomatoes	Brussels Sprouts, Kohlrabi, turnips, grapes
Raspberry	Garlic	Not Known

Rhubarb	Roses, Brassicas, Wallflowers, garlic, onions	Lovage
Rosemary	Cabbage, Beans, Corn, Sage	Potato, Tomato
Spinach	Peas, beans, strawberry, fruit, radish, lettuce, cauli, cabbage, celery, eggplant, onion, parsley, sage	Potato
Squash	Nasturtium, Corn, Marigold, Beans	Potato
Strawberry	Chrysanthemum, dwarf beans, lettuce, peas, spinach, borage, chives	Cabbage, Brussels
Thyme	Cabbage, salad burnet, brussels, eggplant	Not known
Tomato	Basil repels tomato worm, chives, Bee balm, mint, Onions, asparagus, lily of the valley, borage, garlic. lemon balm, nasturtium, chives, marigolds, chervil, cucumber, peppers, parsley, lettuce, carrot, celery, onion, sage, peas	Potato, fennel, cabbage, dill, rosemary, corn

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Some other Companions!

A dymanic accumulator is a plant that mines nutrients from the soil and makes them available to other plants. They can be used within the guilds, or used as green manure.

Accumulator Plant	What it does
Alder	Nitrogen Fixer
Alfalfa	Nitrogen fixer, accumulator of Iron, Magnesium, Phosphorous and Potassium plus the young growth is delicious and nutritious
Bladderwrack	Iodine, Magnesium & Iron
Borage	Silica, Potassium and those beautiful blue flowers
Bracken	Potassium, Phosphorus, Manganese, Iron, Copper. A lot of people here eat the fiddlehead greens from the wild ostrich fern
Carrot Leaves	Magnesium, Potassium. When thinning carrots we use the tiny carrots in salads and leave the leaves on the ground
Chives	Calcium
Clover	Nitrogen, Phosphorus. These were planted by the previous farmer after a grain crop, so are prolific on the property
Comfrey	Silica, Nitrogen, Magnesium, Calcium, Potassium, Iron
Dandelion	Sodium, Silica, Magnesium, Calcium, Potassium, Phosphorous, Iron, Copper.
Garlic	Sulphur, Fluorine, Manganese
Lamb's Quarters	Nitrogen, Calcium, Potassium, Phosphorous, Manganese. These are a local “weed”. I usually add a few to my green smoothies.
Lemon Balm	Phosphorus
Lupins	Nitrogen, Phosphorus
Marigold	Phosphorus
Mint	Magnesium, Potassium
Salad Burnet	Sodium, Sulphur, Magnesium, Calcium, Iron. It self-seeds very well.
Sorrel	Sodium, Calcium, Phosphorous
Summer and Winter Savory	Potassium
Strawberry Leaves	Iron
Yarrow	Magnesium, Potassium, Phosphorus, Copper

Here's a link to some great charts on Dynamic Accumulators

Guilds

From the companion planting and dynamic accumulator tables we have designed "guilds" of plants which we think work together very well in this climate. A guild is another step beyond companion planting, using a set of plants to aid and assist each other in a number of different ways. In each planting guild we try to incorporate the following components: Food plants, Nitrogen fixers, dynamic accumulators, groundcover/living mulch (if not available then organic mulch), Climbers, support for climbers, protection (insect repellents, attracting predators, thorny barriers), attractors for pollinators (e.g. flowers, water, seeds, perching places) and green manures.

Forest Garden Guilds

The basis is fruit trees, shrubs and groundcovers (nut trees are on the wish list!). Interplanted in any spaces are salad burnet, summer savory, winter savory good king henry, garden sorrel, French sorrel, catnip, feverfew, parcel, angelica, beans, cardoon, seakale, perennial bunching onions, perpetual spinach, comfrey, arugula (Turkish rocket). Within the forest garden area, there are three distinct areas

Strawberry beds.

Strawberries, Garlic, Spinach, Borage, Peas, Chives. Strawberries give groundcover, their leaves accumulate iron & are medicinal. Borage attracts pollinators, is an accumulator of Si, K, Vitamin C, is a mulch, medicine and is edible. Spinach & peas provide food and fodder and they are nitrogen fixers. Chives provide tasty herbs & protection from insect pests. In this guild we use coppice sticks for pea support.

Fruit Trees

Trees, nasturtiums, lupin, chives, currants, strawberries, flower bulbs. Trees provide food and support for climbers, e.g. nasturtiums which provide living mulch & fix N. A lupin near the base of the tree fixes nitrogen & attracts pollinators. Chives repel aphids and borers and provide calcium. A currant bush is often beneficial to fruit trees & provides food, medicine and dyes. Strawberries for food, groundcover and iron rich mulch. Bulbs around a tree are attractive, remove excessive N in spring & attract pollinators for fruit.

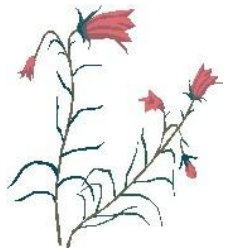
Rhubarb Area

Rhubarb, Roses, Kale, wallflowers, garlic, onions & borage. Provides food. Rhubarb leaves, whilst poisonous, provide good mulch, the root said to be medicinal. Leaves can be used to polish tarnished metal and used as lining material. If allowed to blossom it is attractive to pollinators & beneficial insects. Bright yellow dye is got from the root, Roses provide beauty & petals. Kale provides food and sheep fodder. Garlic is a food, protector, accumulator of sulphur, flourine and manganese.

Other guilds we have planned (Worked well in the past)

Asparagus	Asparagus, outdoor tomatoes, bee balm, wild foxgloves, marigolds, basil, parsley, nasturtiums, seaweed mulch
Jerusalem Artichokes	Jerusalem artichokes, snow peas, radish, cucumber, garlic, lupin. The Jerusalem artichokes provide food, medicine, support for peas, coffee substitute, sweetener substitute, fuel alcohol, summer shading or windbreak, foliage/tubers for animal fodder, snow peas provide food and nitrogen fixation
Pole Beans	Pole Beans, Radishes, melons, celery, marigolds
Grapes	Grapes, hyssop, bush beans, peas, blackberries, chives, cosmos, geranium
Three Sisters	Corn, beans, squash, alyssum, watermelon, borage
Carrots & Outdoor Tomatoes	Carrots, Rosemary, chives, leeks, peas, tomatoes, sage, borage, coriander In the past the tomatoes, carrots & borage always self-seed and produce plenty next year with no need to re-plant
Potatoes	Horseradish, Comfrey, Coriander, Broad Beans, Dandelions. Comfrey is a green manure and dynamic accumulator of Si, N, Mg, Ca, K, Fe.

Food Storage



It is our aim to eat some home & local produce year-round as much as possible. We can't grow anything at all outdoors for many months of the year here, so I think that the necessity of the situation focused us a lot more on preserving the harvest.

Root Cellar

A root cellar doesn't actually have to be a root cellar in that any cool place where the produce won't freeze will do. So it could be an insulated box in the garage or something similar. The root cellar is great for storing produce without having to do a lot of preparation (like canning and freezing) first. We've been surprised at the great results we've had, and at the same time have made mistakes and sustained losses. A lot of the things in the root cellar can help winter salads along, e.g. grated carrot and radish, great to supplement sprouts and microgreens (see below).

The variety of things that can be stored in a root cellar:

- Potatoes (cure for 7-10 days before storage)
- Parsnips
- Garlic
- Carrots (leave short stem and pack in damp sawdust or sand)
- Onions (dry for 2 weeks before storage)
- Jerusalem Artichokes (damp sand)
- Apples
- Pears
- Pumpkins
- Squashes (cure summer squashes for 2 weeks before storage)
- Winter Radish
- Winter Melon (a.k.a. Wax Gourd)
- Celery (store with roots intact)
- Beets (leave a 1" stem)
- Endive
- Turnips
- Swede (Rutibaga)
- Kohlrabi (store in box of moist peat)
- Celeriac
- Salsify
- Scorzonera
- Cabbage (Red, White and Green - store with roots intact)
- Chinese Cabbage (complete with roots)
- Leeks (dig them up with the roots and plant in a bucket of compost)
- Sweet Potatoes (must be cured)

Shorter-term storage:

- Cantaloupe
- Peppers
- Cucumbers
- Aubergine (eggplant)
- Tomatoes (1 layer deep in a box with newspaper on top)
- Brussels Sprouts (packed in a poly bag with holes in)

Pantry

Dried Peas, Pulses, Beans
Seeds (sunflower, pumpkin, flax)
Dehydrated Foods (berries, vegetables, pumpkin seeds, onion powder, celery powder, garlic powder, spinach powder)
Roasted Seeds
Nuts
Canned fruits (berry mixes, spiced apples, stewed rhubarb)
Canned Vegetables (tomatoes, ratatouille)
Wheat and other grains

Freezer

I try to keep freezing to a minimum because of the energy input required to keep things frozen. There's nothing like your own garden peas in January though! We also freeze young zucchini, corn, peppers, berries and snap beans.

Refrigerator

Raw food dehydrated items, such as "Onion bread", "Pizza Bread", "Breakfast Bread" or "Buckwheat Cereal" are great ways to preserve seeds, fruits and vegetables in a very delicious way that preserves all the enzymes of the raw foods. These can be dried using an electric or solar dehydrator.

How to grow your own fresh greens, even in the depths of winter!

Forcing	Sprouting	Growing
Endive	Peas	Parsley
Beets	Sunflower Seeds	Chives
Onions	Rocket Seeds	Cilantro
Carrots	Cabbage Seeds	Wheatgrass
Turnips	Radish Seeds	Lettuce Mix
Celeriac	Lentils	Microgreens
	Aduki	
	Mung Beans	
	Garbanzos (chick peas)	

Forcing is when you bring some of your vegetables in from the root cellar and plant then in compost indoors to produce fresh winter greens. Keep the compost moist and snip off the green growth for salads. In the case of Endive, keep in a dark cupboard, the rest should be grown in the light. This is a method of using the energy stored in the root to provide new growth. Cabbages in the root cellar need to be stored with their roots intact. When you decide to use a cabbage, however, don't throw the root away. Just pot it up and new tender growth will appear.

Microgreens

Microgreens are great in the winter in the northern hemisphere and can also be very useful in the baking hot sun and dryness of the south in Summer. They provide a fantastic range of tastes and nutrients and all with zero food miles (that's what we like!). They are also great (along with sprouts) all year around for folks that don't have access to gardens to grow vegetables outdoors. They take up a small amount of space.

They differ from sprouts in that they are not grown just using water but grow in a small amount of soil. They are like immature vegetables somewhere between a sprout and a green leafy vegetable. Really, it's no different to if you grew mustard and cress as a kid, just more variety, colours and flavours are available nowadays, oh and now there's a fancy name for it! Good seeds to grow and collect in order to grow microgreens include Amaranth, Arugula, Beets, Basil, Cabbage, Celery, Chard, Chervil, Cilantro, Cress, Dill, Fennel, Kale, Mustards, Mizuna, Pak Choi, Parsley, Radish, and Sorrel, Lettuce and Mesclun mixes,

There is lots of info on the web about microgreens (just do a search) so I won't go into too much detail, but will just summarise the procedure below. There's also a book "Microgreens: A Guide to Growing Nutrient-Packed Greens" by Eric Franks and Jasmine Richardson (Gibbs Smith, $19.99).

All you need is some kind of tray and some kind of clear dome-type lids, e.g. recycled plastic packaging, takaway containers, or can use cling film as lids. Punch holes into the bottom of the container for drainage.

- Create a shallow seed bed about 1.5“ potting soil, spread evenly with a flat surface.
- Sprinkle seeds generously across moistened soil surface (without overlapping, covering the soil) and press down gently.
- Place 1 layer of unbleached paper towels over top of seeds (or a thin layer of compost), place in light place but not in direct sunlight.
- Water using a spray bottle, soak towels and ensure that soil below is moist. Not too wet and not too dry.
- Cover Tray with lid. Monitor moisture levels. Ensure sufficient air circulation (maybe remove the lid) to avoid damping off. Some people have a problem with mold near the roots but this is said to be harmless, try watering with chamomile tea and ensure adequate airflow.
- Once seeds germinate remove the lid and the paper towel (if used) and place in a spot that receives good daylight
- Harvest when there are seed leaves and the first set of true leaves and 4” high, snip with scissors.

You can grow mixtures together if they have similar germination rates and growing rates. This saves time and adds interest.

Growing Wheatgrass

Rinse, then soak wheat berries overnight, rinse and soak again, repeat until they start to show little tiny shoots Spread them evenly over the surface of a tray of compost. Keep the compost moist and mist the tips of the growing grass with water regularly.

Takes 8-10 days to grow sufficiently to use in your juicer. After harvesting, a second crop will grow which is not as nutritious as the first. You can still use it or give it to the sheep. Then the hens pick at the remaining wheatberries and we use the matt as mulch.

After you've used it all you can sometimes get a second crop. The compost can be re-composted. We've found that the sheep adore the leftovers as a winter treat, then the hens peck at the remaining seeds, then we compost the root matt that's left.

Some Storage Tips

- Keep root vegetables in the ground as long as possible but harvest before the ground freezes. This way they will store longer. Hill up the soil over them and pile straw over that for additional insulation. Then dig when the ground starts to freeze. Be careful if there is any danger of snow so you don't lose where they are located!

- Parsnips can actually be left in the ground over the winter as they convert starches into sugars and become very sweet. It doesn't matter if the ground freezes! Or, if you want to dig some up before the winter they can be stored outside.

- Onions should be harvested as soon as the tops fall over. If you leave it too long the tops will shrivel and you can lose sight of where the onions are! Then let then cure (dry) before putting them into storage.

- Leave pumpkins and winter squash on the plants until the plants die. Leave a stem on the fruit.

- Celery will keep a short while in the root cellar, but extend it's shelf-life by harvesting it and storing it upright in a trench covered with straw or paper and earth. They will root and become tender. You can remove them before snow and ice and then put them in the root cellar.

- Dry bush or pole beans (and pea) provide a fantastic food source over the winter. They can be used in bakes, soups or stews and can be sprouted indoors over the winter months for fresh salads and sandwiches. Once dried in the pods they can be easily collected and stored without needing any energy inputs. We grow loads of different heirloom varieties and always have enough left to plant again next year (and spares to swap or give away to friends).

- Don't throw out old leek roots, re-plant them and they will produce fresh, new growth. Try this with leeks purchased from the greengrocers as well!

- When you cut into a squash or pumpkin in the middle of winter, you can roast the seeds for snacks or sprout them. It's nice that none of the root cellar crops need processing in any way during the Autumn when we are already busy dealing with the rest of the harvest. We use a cool part of the cellar underneath the house, although there are lots of ingenious ways of constructing a root cellar