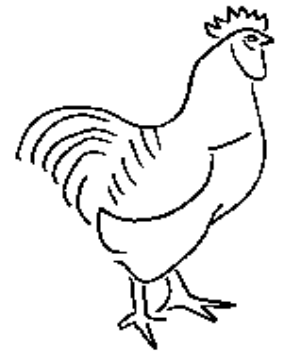


Free Range Practice Guide No. 5:

Grow Your Own Food

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With a few basic ideas for establishing 'own-grown' methods to produce your own food at low cost, this guide looks at the basic requirements for growing food, and considers some of the options for how you might be able to do so. The aim of the guide is not to tell you how to grow food. There are plenty of books around that already do that. Instead, it looks at some of the issues you need to consider before embarking on 'own-grown' gardening.

Food is the most basic resource of all. Environmental groups often talk of clean air, or green energy, or better home insulation. Some even work on food production, and the problems inherent in industrial scale food production and processing. But very few consider the value of enabling people to grow their own food, and the potential benefits to their health and economic well-being this creates.

The ability to grow food is a basic skill that is life enhancing. It provides an opportunity to enrich your personal well-being. It allows you to produce fresh food, higher in minerals and vitamins than the food bought from the retail corporations. It can be of the same quality as shop-bought organic food, without the hefty premium that shops place on organic produce. The work required to garden improves physical fitness. It is also psychologically beneficial.

The often unexplored factor is that growing food reduces your dependence upon 'earned money'. By substituting bought food for 'own-grown' food you assert your own lifestyle choices. Alongside other measures, you reduce your dependence upon the routine '9-5' employment. For those on low incomes, for whom food costs represent a major part of their expenditure, displacing bought food with own-grown food has a very beneficial impact on home finances.

This guide looks at the basic requirements for growing food, and considers some of the options for how you might be able to do so. The aim of the guide is not to tell you how to grow food. There are plenty of books around that already do that. Instead, it looks at some of the issues you need to consider before embarking on 'own-grown' gardening. It also considers some of the related issues, such as storage, and the reuse of organic wastes.

Problems to be aware of

The great problem with growing your own food is space – having the space within which to grow it. Most new housing developments have a minuscule amount of garden. Often the ground in new developments is very poor – a mixture of imported-in top soil and construction contaminated sub-soil. This has poor fertility, and will need improvement.

On brownfield development sites, because the development regulations are so poor, there may be a clay or plastic liner under the earth that prevents contamination rising to the surface. Where liners are used, the ground will be useless and easily waterlogged. Puncturing this liner during cultivation could result in dangerous liquids or gases being released.

Some housing developments, as part of their landscaping, use the cheapest available material for topsoil – the soil washings from sugar or potato factories. This is a problem not only because it has a really poor soil structure. It also tends to be high in pesticides residues.

At the same time the public spaces for growing food – the public allotments – have been decimated in the last forty years. Those that remain are often so over-subscribed that you have little chance of getting one. Mostly they have been pushed to the most marginal land or are poorly located (or both). The exception are those areas that still have a strong tradition of allotment holding – such as the north east of England.

Well drained, flat areas of undisturbed land are ideal for allotments and gardens. But they are also top of the list for housing and industrial development. The only land that housing developers do not covet are alongside industrial estates, or in the flood plain of rivers. Many local authorities have accepted the extinguishment or relocation of allotments without any regard to the needs of the plot holders. Often the new locations allotments are moved to have poorer growing characteristics.

For example in Banbury, Oxfordshire, large areas to the south and east of the town were once public allotments. Today there are only a few allotments around the town, and the principle allotment space is sandwiched between an industrial estate, a new development area, and the town's sewage works. But even in areas with strong allotment tradition thoughtlessness can threaten allotments – such as in Newcastle-upon-Tyne, when highly contaminated incinerator ash was used for allotment paths to save money.

'Own Grown' Economics

The economics of growing your own food are influenced by two main factors – what you grow and where you grow it.

If you grow food in your own garden you have no additional costs. However, if you grow food on an allotment, or rented land, you are likely to be spending £20 to £100 per year, or more, for your plot.

The cost of seed varies. You can buy from your local garden centre to begin with, and then perhaps buy mail-order from a seed merchant's catalogue.

All seeds sold in the UK must be approved varieties on the government's 'seed list'. Traditional varieties, not on the list, are not allowed to be sold. But there are free 'seed exchange' schemes, run by organisations promoting small scale and organic growing, where you 'borrow' seed and then return a greater quantity of seed, that you have produced yourself, at the end of the year.

Assuming you buy/grow seed and plants in low volumes, consider the following examples:

- ◆ 1 packet of lettuce seed costs £1. From this you might get 50 or 60 lettuces. Shop value, 70 pence each. Assuming you spent £10 on compost and containers, that's a saving of around £25.
- ◆ 1 packet of melon seed costs £1.50. From this you might get 15 melon plants, each producing three or four melons. Shop value, £1.50 each. Assuming you spent £15 on containers, compost, a plastic cloche or shelter, that's a saving of around £50.
- ◆ You buy five outdoor tomato plants at £1 each. Each of those plants will yield perhaps 2 kilos of tomatoes each. Shop value, £2.50 per kilo. Assuming you spent £5 on grow bags, that's a saving of £15.

As a very rough-and-ready guide for low-volume container- or grow-bag-based production, for every £1 you spend on seed and growing media you'll save £2.50 on purchasing food.

For larger scale production, that saving will be around £2.50 to £3.00 per square metre of cultivated soil. It depends upon whether you opt primarily for root crops and shrubs, or invest in a greenhouse or cold frame.

Obtaining a plot

Unless you are lucky enough to have a huge garden of good quality soil, you are going to have to find 'a plot'.

For those in areas with good allotment provision this should not be a problem. In those areas that have preserved the tradition of plot holding, you will need to contact your local

allotment association(s) to see what their current waiting list status is. In many areas, particularly in the south east, there is a shortage of allotments. In these areas you may have problems finding a suitable plot near to your home.

The poor provision of allotments is contrary to the legal obligations of local authorities under the 1906 Act which required them to provide allotment gardens. There are also government guidelines, originated by the Thorpe Commission (a departmental commission on allotments in 1969), which requires local authorities to provide 0.2 hectares of allotments for every 1,000 local people. However, for most local authorities, allotments are not a priority for local 'leisure' provision.

Where there are problems obtaining a public allotment, another option is to rent or purchase your own plot locally. To do this you will need a sympathetic farmer/landowner. Agricultural land sells for a few thousand pounds per hectare. On that same hectare of land, farmers may also be able to obtain three hundred to eight hundred pounds of production or set-aside subsidy. Therefore, because of the cost, this is only a realistic option if you work with others to buy or rent collectively. If you do this, it's probably better that you set up an official co-operative body. Not only because of the legal protection, but you'll also be able to buy from wholesalers (see Practice Guide 3 on 'Buying Collectively') saving yet more money.

If you take the option of renting or purchasing agricultural land, be aware that you might have local planning problems. So before committing yourself, call your local planning office to check their position. In general you'll be able to get away without planning permission if:

- ◆ You don't erect any large buildings – just a small tool chest to store tools/equipment.
- ◆ You use an existing farm access to get to the land, and don't build a car park.
- ◆ Make sure the plot is more than 25 metres away from any public roads.

The need for land

Growing food requires land. Not just any land. It must have good quality soil, and must be free from not only contamination, but there should be no nearby land uses that might taint or contaminate the crops with chemical or biological substances. This is actually harder than it may seem. Finding undisturbed land for growing food, away from major roads, industrial estates and flood plains is quite difficult in many urban areas, especially in the south east.

The amount of land required to grow food is dependent upon the level of 'own-grown substitution' you wish to achieve. Growing the potatoes to feed an average family of four takes

sixty to eighty square metres. That's two thirds of the standard '5-rod' allotment.

To provide a variety of crops requires a balance between diversity, and the level of production you want to sustain. You also need to balance the amount of land you have, with the amount of time different crops take to grow to maturity:

- ◆ Some crops can only be harvested once – such as sweet corn.
- ◆ Some grow to maturity, and then will quite happily stay in the ground for a number of weeks until you need to harvest them – such as potatoes or swede.
- ◆ Some can be sown successively to provide a continuous crop from a similar area of land – such as lettuce.
- ◆ Some grow quickly, and then can be continuously cropped, re-growing between each cropping – such as spinach.

There are various ways that you can grow food. Some crops can be grown indoors in pots, or you can by dried beans or seeds (like mustard or mung beans) and sprout them. It's also possible to grow a variety of crops in pots and window boxes. Even a small garden can provide a regular supply of continuously-harvested leaf vegetables, and some high-cropping plants such as tomatoes.

The table on the next page gives information for 51 different fruits and vegetables. Most of these can be grown outdoors, although some need starting or continuous growing in cold frames or greenhouses. The table shows the contrast in production between different types of crop. Note these are maximum levels of production, not average levels. The maximum level of production, averaged over all 51 crops, is 4.8kg/m² (kilos per square metre). Assuming that you will get at least 50% of these figures, each square metre of ground will yield enough produce for two or three days consumption by one person.

Summing these figures according to their particular group of crops:

- ◆ *Fruit crops* – average 3kg/m² (apples, apricots, blackberries, blackcurrants, cherries, figs, gooseberries, grapes (greenhouse), grapes (outdoor), melons, peaches, pears, plums, raspberries, red currants, rhubarb, strawberries)
- ◆ *Root crops* – average 9kg/m² (beetroot, carrots, jerusalem artichokes, leeks, onions, parsnips, potatoes swedes, turnips)
- ◆ *Brassic*as – average 4kg/m² (brussels sprouts, cabbages, cauliflower, kale, sea kale, spring cabbage, sprouting broccoli)
- ◆ *Legumes* – average 7kg/m² (broad beans, french beans, peas, runner beans)
- ◆ *Salad crops* – average 7kg/m² (celery, cucumber, lettuce,

peppers, radishes, tomatoes)

- ◆ *Other crops* – average 2kg/m² (asparagus, aubergines, chicory, globe artichokes, marrows/courgettes, mushrooms, spinach, sweet corn)

The important thing is to plan how you will grow crops. You have to rotate the crops in order to prevent the soil being degraded of nutrients, and to reduce the levels of soil-borne crop pests. If you garden in pots or containers, or in a greenhouse, rotating is less critical if you regularly fertilise or replace the soil. But in open ground, you must rotate crops each season.

The general succession of crops in the same area of soil is:

- ◆ Legumes and other crops (they help fix nitrogen for successive crops) – beans, celery, leeks, lettuce, onions, peas, spinach and tomatoes;
- ◆ Root crops – beetroot, carrots, parsnips, potatoes and radishes; and
- ◆ Brassicas and other crops (sensitive to pests) – brussels sprouts, cabbages, cauliflower, kale, swedes and turnips.

In addition, you will have a 'fixed' location for perennial fruit trees. These will need regular mulching with organic matter to maintain fertility.

You should be able to produce a variety of salad vegetables – lettuce, tomatoes, radishes and spinach – during the summer from a few square metres of containers. But a larger space gives you greater flexibility. In particular, more space allows you to manipulate planting to allow inter-cropping and catch-cropping.

Inter-cropping is where you grow a quickly maturing crop, that is tolerant of a little shade, between two rows of slow-maturing crops. For example, growing lettuce between rows of peas. Catch cropping is where you grow fast growing crops in ground that is not planted until the summer. For example, you can sow carrots or radishes in the early spring, and then harvest before planting late-sown cabbages on the same ground in late spring/early summer.

The next problem – storage

The produce of small plots has very little latency between harvesting and use. Your production is so small you want to use everything immediately. To get the most out of a larger plot you will have to develop systems for storage. This is because you can't possibly use all the produce during the period over which it is produced, even by spacing your sowing to prolong the harvesting period.

There are four basic options:

- ◆ *Dry storage* – Potatoes and other root crops, and hard fruits such as apples and pears, can be stored in any cool, dry location. Fruit usually needs packing in on card in

Different Crops and their Characteristics

| Plant | Type | Input | Approx. density (plants/m ²) | Av. crop (kg/plant) | High yield (kg/m ²) | Sow to har- vest, weeks |
|----------------------|-------------------------------|--------|---|------------------------|------------------------------------|----------------------------|
| Apples | Tree (50 years) | Medium | 0.05 | 250.0 | 12.5 | 3 - 5 years |
| Apricots | Tree (40 years) | Medium | 0.3 | 20.0 | 5 | 4 - 7 years |
| Asparagus | Perennial (20 years) | High | 6.5 | 0.6 | 3.9 | 2 - 3 years |
| Aubergines | Half Hardy Annual | High | 2.5 | 0.8 | 2.2 | 24 - 26 |
| Beetroot | Half Hardy Annual (Biennial) | Medium | 80 | 0.1 | 8.3 | 8 - 10 |
| Blackberries | Shrub (15 years) | Medium | 0.3 | 3.5 | 1.1 | 2 years |
| Blackcurrants | Shrub (12 years) | Medium | 0.2 | 4.0 | 0.9 | 2 years |
| Broad beans | Hardy Annual | Medium | 5.3 | 0.4 | 2.1 | 13 - 17 |
| Brussels sprouts | Hardy Annual (Biennial) | Medium | 4.9 | 1.0 | 4.9 | 28 - 36 |
| Cabbages | Annual (Biennial) | Medium | 8 | 1.0 | 8.2 | 20 - 35 |
| Carrots | Annual (Biennial) | Medium | 75 | 0.2 | 15 | 14 - 18 |
| Cauliflower | Half Hardy Annual (Biennial) | High | 2.75 | 0.8 | 2.2 | 18 - 24 |
| Celery | Annual (Biennial) | High | 17 | 0.8 | 13.9 | 24 - 32 |
| Cherries | Tree (50 years) | High | 0.01 | 17.5 | 0.175 | 6 years |
| Chicory | Annual (Perennial) | Medium | 20 | 0.1 | 2.2 | 26 - 29 |
| Cucumber | Half Hardy Annual | High | 1.3 | 3.6 | 5 | 10 - 14 |
| Figs | Tree (500 years) | Medium | 0.03 | 6.0 | 0.2 | 4 - 7 years |
| French beans | Half Hardy Annual | Low | 6.1 | 1.5 | 9.2 | 10 - 12 |
| Globe artichokes | Hardy Perennial (5 years) | Low | 0.8 | 2.5 | 2.1 | 2 - 3 years |
| Gooseberries | Shrub (15 years) | Medium | 0.5 | 5.0 | 2.1 | 2 - 3 |
| Grapes (greenhouse) | Vine (300 years) | High | 0.2 | 7.5 | 1.7 | 3 years |
| Grapes (outdoor) | Vine (300 years) | Medium | 0.6 | 3.5 | 2.0 | 3 years |
| Jerusalem artichokes | Annual (Perennial) | Low | 1.7 | 1.0 | 1.7 | 39 - 48 |
| Kale | Hardy Annual (Perennial) | Low | 3.8 | 0.8 | 3 | 36 - 52 |
| Leeks | Hardy Annual (Biennial) | Medium | 31 | 0.1 | 3.13 | 30-45 |
| Lettuce | Half Hardy Annual | Medium | 13 | 0.3 | 3.3 | 8 - 14 |
| Marrows/Courgettes | Half Hardy Annual | Low | 0.6 | 1.5 | 1.0 | 12 - 14 |
| Melons | Half Hardy Annual | High | 0.6 | 8.9 | 5.6 | 16 - 18 |
| Mushrooms | Fungae | Medium | lots | 0 | 0.7 | 4 - 12 |
| Onions | Annual (Biennial) | Medium | 20 | 0.1 | 2.1 | 14 - 23 |
| Parsnips | Annual (Biennial) | Low | 12 | 0.4 | 5 | 26 - 48 |
| Peaches | Tree (40 years) | High | 0.05 | 32.0 | 1.5 | 2 - 3 years |
| Pears | Tree (150 years) | Medium | 0.1 | 25.0 | 2.8 | 5 years |
| Peas | Hardy Annual | Medium | 30 | 0.3 | 8.3 | 11 - 14 |
| Peppers | Half Hardy Annual | Medium | 3 | 0.7 | 2.1 | 20 - 28 |
| Plums | Tree (50 years) | Medium | 0.05 | 25.0 | 1.25 | 4 - 5 years |
| Potatoes | Half Hardy Annual | Medium | 4 | 7.0 | 30.8 | 17 - 22 |
| Radishes | Hardy Annual | Low | 67 | 0.1 | 6.7 | 3 - 6 |
| Raspberries | Shrub (12 years) | Medium | 1.5 | 2.0 | 3.0 | 2 years |
| Red Currants | Shrub (20 years) | Medium | 0.4 | 3.0 | 1.3 | 2 years |
| Rhubarb | Hardy Perennial (20 years) | Low | 1 | 2.8 | 2.8 | 2 years |
| Runner beans | Half Hardy Annual | Medium | 11 | 0.8 | 8.9 | 10 - 14 |
| Sea kale | Hardy Perennial (6 years) | Low | 0.8 | 0.5 | 4.0 | 1 - 2 years |
| Spinach | Hardy Annual | Medium | 2.8 | 0.8 | 2.2 | 6 - 8 |
| Spring cabbage | Annual (Biennial) | Medium | 5.8 | 0.5 | 2.9 | 36 |
| Sprouting broccoli | Half Hardy Annual (Perennial) | Medium | 4 | 0.6 | 2.5 | 12 - 16 |
| Strawberries | Hardy Perennial (3 years) | Medium | 2.3 | 0.3 | 0.7 | 26 - 40 |
| Swedes | Hardy Annual (Biennial) | Low | 7 | 0.8 | 5.6 | 20 - 24 |
| Sweet corn | Half Hardy Annual | Low | 3.5 | 0.2 | 0.7 | 9 - 14 |
| Tomatoes | Annual (Perennial) | Medium | 4 | 3.5 | 14 | 12 - 15 |
| Turnips | Hardy Biennial | Low | 44 | 0.3 | 13.3 | 10 - 12 |

The 'type' column lists the growing characteristics of the crop. Annual crops must be re-sown every year from seed. Biennial crops are sown in one season, and may crop for one or two seasons. Perennials grow for a number of years, cropping each successive season (cropping life is given in brackets). Note that some annuals are biennials or perennials – they are grown for one year from propagated plants to increase yield. The 'input' column gives an idea of the amount of work required to grow the crop. Finally the 'density', 'crop' 'yield' and 'maturity' columns give an idea of the amount of food produced per plant, and how long it takes.

boxes, on shelves or in straw. Root veg. can be stored in large sacks, paper bags, or in straw. Some veg. can also 'strung up' or held in nets – such as onions, cabbages and marrows – and hung.

- ◆ *Clamping* – Many root vegetables can be left in the ground, then lifted and 'clamped'. Dig a circular trench (for drainage) and make a low mound on the ground, pack the veg. in straw, and then bury the mound of straw with more soil. The clamp protects the veg. from frost. The straw keeps the clamp drained. You can then dig out the veg. in small quantities as and when you need it. If the location is particularly wet, you'll need to dig a drainage ditch.
- ◆ *Freezing* – Probably the best option is to buy a chest freezer big enough to hold your production. This has cost/energy implications, but you should still save money. Freezing is particularly good for soft fruit, plus all the usual veg. you buy in the shops – although it's a good idea to chop the roots, and shell the beans/peas, because you'll have problems doing this when they're frozen. It's also a good idea to blanch the produce first – dropping it into boiling water for ten to twenty seconds in order to kill off moulds or spores – before freezing.
- ◆ *Bottling or pickling* – It requires a little more effort, and cost/energy, but you can cook-up fruit and veg. to produce jams and bottled preserves. Use a little vinegar and sugar, and you can produce pickles and chutneys. The main problem with this method is the purchase/storage of the jars used to store the preserves.

Crops should be harvested when they are dry, and preferably before any frosty weather sets in. If possible, avoid banging or bruising the produce as this encourages rot.

The other benefit of storage, apart from having a regular supply of food, is that you end up with small, ready packaged quantities of produce that you can sell or trade for items you do not produce.

Integrating the whole – waste recycling

Households regularly produce between half to one kilo of food waste per day. Much of this is landfilled – wasted. This means that the whole concept of the carbon cycle – where carbon and essential nutrients are recycled back to the soil to grow more plants – is broken. In turn, the breaking of this cycle means that modern agriculture requires large energy input, in the form of fertiliser, to maintain fertility in the soil.

The response of many councils to organic wastes is 'home composting'. This is a misnomer. The organic material is equally wasted as people most do not garden. In actuality, councils are instituting a system of 'domestic land raising'. Assuming that the one, daily kilo of organic waste rots down

to 50 cubic centimetres of soil, and the average garden is 25 square metres, every 14 years 1 centimetre will be added to the height of the garden. Like the cottage gardens of old rural villages, which took food wastes as well as septic wastes, eventually the garden will rise far above the surrounding land.

To garden successfully you need to compost. Not just the garden waste, but the kitchen waste too. The material can be composted to produce new growing media for your crops – either dug into the soil, or mixed with soil to fill containers. In this way, the waste is recycled into new food.

For those who garden at home, recycling organic wastes is not a problem. But for those who garden away from home, you'll need to find a way to regularly transport organic wastes. For example, buy a 10 litre plastic drum with a sealable lid (these are often used for wine or beer making). You can store a few days organic wastes in the drum, and then transport it to the garden on your regular visits (assuming you visit the garden every few days).

For those with the space, and perhaps tolerant neighbours, some people go the whole distance. They use composting toilets and recycle their septic waste. There is nothing wrong with this provided that the waste is well composted, and that it is left to weather for a season to allow bacteria to fully break down the pathogens. You then deep dig this material into the base of your soil, rather than growing the plants directly in it. The worms then do their work processing this material up the soil column.

'Food for free'

So far, we've looked at ways in which you can grow food yourself. This of course has a cost implications. But for those who live near rural areas, we shouldn't ignore the potential for gathering food from the countryside.

There are certain restrictions to this idea. Gathering food in intensively farmed areas, or near to industrial areas, has implications for your health. You must always look around to see if the plants are near to a major road, a factory, or a waste disposal site. You should also consider the impact on nature. Do not collect food near to nature reserves, or in environmentally sensitive areas.

There are many books on collecting food from the countryside/the wild. The sort of things that you can easily collect are nuts and berries, fungi, and the 'edible weeds' such as nettles, dandelions, and wild herbs (which can make more flavourful substitutes for the very expensive herb teas!). The most useful aspect of such free food is the way it can supplement own grown produce – in particular the use of wild produce to improve your use of your own produce. For example, you could collect wild crab apples, to cook up

with your own soft fruits to make jam, as the high pectin content of the crab apples helps the jam to set.

The aim – localisation

The food you buy in the shops carries a higher price than its monetary value. It involves a huge expenditure of energy, and so has global impacts. Your M&S fruit salad may have been packed and flown from South Africa the previous day, and your potatoes carried by ship and road from Egypt.

The breaking of local production from local consumption results in many more problems than just a large expenditure of energy on transport. Local production create the basis of a local economy, insulating it from wider agricultural and economic crises. The need to produce food to meet global market conditions also degrades agricultural practices. It encourages unsustainable, industrial-scale production. It also encourages the destruction of local habitats to expand production, and the development of agricultural monocultures as farms concentrate on just one or two commodity crops.

One of the more subtle impacts is the power that we give to the food producers and retailers to decide how our food should be produced and marketed. As we lose the skills to grow our own food, we become dependent upon others. In turn, we must become part of the globalised economic machine that is responsible for many of the global problems in agriculture.

Growing food is not therefore just an issue in cost-saving. It can also be a tool for personal liberation. As you 'downsize' the money required to support your lifestyle, you open up new, more rewarding (but perhaps more personally risky/less well paid) work opportunities because you don't need as much money to eat.

Further reading

There are many books on growing food. What we hope is that people will look beyond the issue of cultivation, to consider the wider issues that 'own-grown' food raises.

Here are a few suggestions for further information:

This Land is Our Land, Marion Shoard, Gaia Books, 1997.

Silent Spring, Rachel Carson, Penguin Books, 1962 (reprinted many times).

The Complete Book of Self Sufficiency, John Seymour, Dorling Kindersley Books, 1976 (reprinted many times).

Organic UK – <http://www.organicgarden.org.uk/>

Henry Doubleday Research Association – <http://www.hdra.org.uk/>

Foundation for Local Food Initiatives – <http://www.localfood.org.uk/>

'*Vegetables Suited to Container Growing*' – <http://www.ext.vt.edu/departments/envirohort/articles/vegetables/contvegs.html>

The Free Range Network is a 'disorganisation' of activists and specialists that organises workshops and develops information resources for community and grass roots campaigning organisations. Free Range Practice Guides are produced on an occasional basis, and are intended to develop the level of practical skill within community organisations.

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