URBANAG

Doing Urban Agriculture

An introductory course

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Module 0

INDUCTION

Introducing Urbanag

Urbanag is a social enterprise founded in 2010 with the objective of promoting urban agriculture.

In a world where population growth and rising economic expectations mean demand for food and the price of food are rising at the same time, while climate change and dwindling resources challenge our resilience, it is essential to maximise agricultural skills and capacity while recognising the earth's limitations and humanity's impact upon its systems. As more and more people flood into cities and once predominantly agricultural societies such as China and India become ever more urbanised, is it possible that only rural areas should provide our food?

We believe it isn't and, in many parts of the world, never has been – although urban agriculture in more affluent societies is a rarity rather than the norm.

This is why we have produced these training materials to help people become "urban farmers".

The materials are introductory, and assume no prior knowledge. They cover all the main aspects of developing an urban agriculture practice at a basic level. They are intended to stimulate interest and encourage activity.

We are developing more single subject packages. Look at our website for further details: **www.urbanag.org.uk**

Urban agriculture in Africa – on the edge of Cape Town Picture from www.africaontheblog.com

What is urban agriculture?

Learners may already be familiar with the terms **horticulture** – defined by the Oxford English Reference Dictionary as "*the art of garden cultivation*" – and **agriculture** – "*the science or practice of cultivating the soil and rearing animals*". Don't worry about the precision of these terms although you are likely to come across them regularly.

For all practical purposes, **urban agriculture** is the growing or rearing of edible produce, including vegetables, fruit, grains and livestock, within an urban environment. In this country, most of it currently takes place on individual allotments or in private gardens. This course will concentrate on public or community-wide activities, although in practice there will be overlap and individual learners may also have, or want, their own allotment plots.

An important term you are likely to come across is **peri-urban**. Peri-urban farmers are those whose land is on the edge of urban areas. Perhaps surprisingly, they are central to urban agriculture in practice. It is often difficult to completely distinguish between urban and peri-urban activities.

Some commonly grown vegetables of Britain

Most urban agriculture in this country is concerned with growing vegetables and, to a lesser extent, fruit. Livestock rearing is relatively uncommon although of increasing interest, usually involving chickens, bees and occasionally pigs and goats. Grain production (for example, wheat, barley and oats) is commonly regarded as the domain of traditional – including peri-urban – farming and we will not deal with these crops to any significant extent.

What issues characterise urban agriculture?

There are specific issues, rather than practices, that make urban farming different from traditional rural farming. While both are primarily concerned with food production, the scale of operations is perhaps the most striking difference. Many urban food growing sites will be smaller than an acre. Even a small traditional farm will be tens of acres and larger ones can be hundreds or thousands of acres.

This in itself makes it clear that most urban agriculture is not a profit-making activity. Indeed, it is often characterised by a significant dependence on volunteer labour. There is a question – as yet unanswered – concerning what size an urban agriculture enterprise would need to be in order to generate revenue, employ labour and create profit.

There are a number of complicating factors.

Accessing urban land is often difficult for communities, particularly if they have limited means. Buying urban land at commercial rates would be prohibitive – even if it were available and not classified as development land intended for buildings. In almost all cases that we know of the acquisition of urban land for cultivation or stock-rearing depends on the goodwill and generosity of land-owners or the intervention of local authorities.

The productivity of urban land is likely to be substantially lower than rural farmland where intensive methods are often used. But even where intensive methods are not used, the scale of operations in a rural context supports significantly higher yields than might be achieved with typical urban sites.

Despite the apparent similarity in the practice and aims of urban and rural agriculture, urban and rural food production are very different activities.

Is urban agriculture unusual?

In many parts of the world – notably in Africa, Asia and Latin America – urban agriculture is a well-established practice. The United Nations estimates that as many as 800 million people (or about 12% of the world's population) are engaged in some form of urban agriculture. Much of this involves rearing livestock as well as growing fruit and vegetables.

Not only are urban and rural farming different, but there are differences in the forms that urban farming takes. The culture of an urban society and environmental factors such as terrain, climate and rainfall (sometimes referred to as **precipitation**) all play a part in what different places and peoples grow or rear. For example, in some Asian countries, pigs and chickens are important, while goats are more evident in Africa.

As urban agriculture expands in this country, there will be variation in both practice and produce in different parts of the country.

Who is this course designed for?

The primary aim of these materials is to support people from community groups and small social enterprises, but we do not exclude individuals with an interest in urban agriculture. Most urban agricultural practice in this country is community focused and poorly resourced. For just these reasons, this is probably where urban agriculture has its biggest economic and social impact.

In other parts of the world schemes requiring major financial investment are increasingly common. They are well beyond the level of funding available to community groups. Such high levels of investment require correspondingly high returns and, frequently, commercial management. In time such schemes may arrive here, offering opportunities for enterprise development and engagement with existing small schemes.

What does the course do?

The course will take participants through the topics relating to the setting up of small-scale, low-cost urban agriculture schemes.

If you complete all the modules you should have a good overview of the needs and skills required to develop and run almost any kind of urban agriculture project. We are actively pursuing accreditation for this course which would enable learners to gain a vocational qualification. Under certain circumstances, such qualifications can be awarded retrospectively, but qualification is not likely to be the learner's main objective.

We hope to improve these materials if possible and welcome feedback from learners and tutors. The package is an ongoing story and we hope to develop it in line with experience and the evolution of urban agriculture itself.

Accessibility

We believe that our course materials should be accessible to all, and requests for the materials in large print or other formats should, in the first instance, be made to the people organising your course. Contact Urbanag at sprouts@urbanag.org.uk for assistance in accessing materials in formats that can't be supplied locally.

If you experience barriers to participation in a course because of these materials, we would like to hear from you and hope to rectify the problem. We cannot be responsible for third parties who may deliver courses using these materials in whole or part. If you have any concerns in such a situation, we advise you to approach the trainers you may be working with.

Health and safety

These materials are intended for classroom teaching, but site visits are desirable and can increase understanding of the subject. When site visits are made it is important to observe health and safety regulations and recommendations in managing the inevitable risks of exterior locations. Agriculture is a potentially hazardous activity. For example, over enthusiastic digging with an ordinary spade or fork can cause back strain. Inappropriate use of tools can cause injury and some power tools, such as chain saws, require users to be properly trained and licensed. Training is usually available locally – check the Yellow Pages. The course includes basic advice on health and safety. We would be happy to advise further if necessary.

URBANAG

Module 1

LAND ON YOUR DOORSTEP – SPACE IN THE URBAN ENVIRONMENT

Introduction

Growing any plant or rearing any animal requires space. This might be a window box for plants, a garden plot, a park or field, or open land. It could be a bit of wasteland – a neglected or derelict site.

In urban areas gardens and allotments are often used to grow fruit and vegetables. Sometimes, chickens, pigs or bees are also raised in gardens or on urban small-holdings. But many people live in flats or apartments without access to gardens or growing space. Allotments generally have long waiting lists and the question of finding and accessing other places where produce can be grown or livestock raised is often important to urban agriculture activities.

This module deals with this question.

In this module

This module covers a number of issues connected with finding and accessing land for urban agriculture. Among the issues dealt with are:

- **The identification if possible sites**
- **The planning process and its importance**
- **Community asset transfer**
- **The Land Registry**
- **Agreements for access**
- **Rights and responsibilities**

Exercises

1. **Explore your local area and make a note of any place regardless of type where produce could be grown or stock reared**
2. **Together with your group, draw up a list of positive and negative aspects for each identified site or location. For example, one site might have been unmanaged for as long as you can remember; this might be listed as a positive, but you have no idea who owns the site; this might be listed as a negative.**
3. **Concentrating on those locations with more positive than negative aspects, list the actions your group thinks would be needed to gain access to each site (use the notes provided and refer to the resources below for further ideas)**

Expected Learning Outcomes

- **Learners will gain a basic awareness of how to identify and access potential growing areas. If the exercises are 'real', meaning that the group undertaking them consists of local residents seeking sites in a particular area, the learners will have taken practical steps towards realising their project. If learners look at an appropriate case study, this will equip them to repeat the exercise in their own locations.**
- **Learners will be able to identify and locate essential resources and agencies.**
- **Learners will gain an awareness of the information they will need to develop a typical urban agriculture project.**

Resources

Contact your local council to find out about the planning authority which you need to consult. According to *An Introduction to the Planning System*, produced by the Third Sector advisory group, Every Action Counts (which has recently rebranded itself as Just Act), planning authorities exist because:

> *"The planning system is needed to control development in your area. Your local council, as your planning authority, is responsible for deciding whether a development – anything from an extension on a house to a new shopping centre – should go ahead."*

- *An Introduction to the Planning System*, **Every Action Counts, 2008. Website http://www.justact.org.uk download from http://www.e-c-a.ac.uk/media/uploaded_files/An_Introduction_to_the_Planning_System.pdf**
- **Your nearest Land Registry office can be found on the website: http://www.landregistry.gov.uk email customersupport@landregistry.gov.uk and helpline 0844 892 1111**
- **If you are seeking an asset transfer, read** *Making Assets Work*, **the Quirk Review of community management and ownership of public assets, which is available on the internet as a download: http://www.communities.gov.uk/communities/pdf/321083.pdf**
- **Land Reclamation: British Land Reclamation Society http://www.blrs.org, email info@blrs.org Please remember they are a charity and not a government agency and most of their active people are volunteers. Like most charities, they are usually strapped for cash but they are a good starting point to assist on issues of polluted and contaminated land.**

Notes

Food can be grown or produced on a range of scales. On a very small scale we might start within our own homes growing potted plants or window boxes. Neither requires gardens but useful crops, especially herbs, can be grown in this way. Some people may have a small corner in their workplace where, for example, a tomato plant can be grown. Recently, roof tops have become increasingly seen as possible growing sites.

Most groups look for access to somewhat larger sites on which to grow produce. It's worth highlighting the term 'access' as opposed to ownership. The latter may be desirable but is rarely achievable. Most groups have had to gain agreement from a public or private landowner to start their schemes

Land owners and ownership

Common sites for urban agriculture include land attached to a church or other place of worship (mosque, synagogue or gurdwara, for example), land next to railway lines, cycle ways or canals, land on housing estates, and land attached to community centres, sports areas or doctors' surgeries. If you know your area, you may come across some unexpected potential growing spaces.

For example, churches have often given land to groups for cultivation as part of their pastoral work. Sometimes the land has become a burden to its owners who may no longer have the resources for its upkeep. In the Liverpool area, Rice Lane City Farm is on the site of an old Anglican cemetery. Other plots of land owned by the church in Merseyside have been given over to food growing projects to help recovering alcoholics or drug addicts. In such cases, the church or place of worship itself should be your first port of call to make enquiries about access. The same advice will apply to community centres, sports areas and doctors' surgeries.

If the site is on a housing estate, it could be owned by a housing association or the local authority. Housing associations and local authorities can be approached directly and the information about who exactly to approach should be available in a phonebook or by contacting a central switchboard or information office. For railway, cycle way and canal-side verges, contact Network Rail, Sustrans or British Waterways – the national agencies who are likely to own the land in question.

Most towns and cities contain pieces of land from roadside snippets to large areas of wasteland that could be used as growing spaces. Derelict land is often the site of former buildings – sometimes still standing – which, although not immediately obvious, could become a suitable growing space after reclamation or remediation work. Tracing the ownership of these sites is likely to be complicated. For example, the land may be privately owned by a business or an individual based many miles away.

With small patches of public land or derelict sites, the first enquiry should still be your local council. While finding out about ownership you may also enquire about plans for the site. It may be part of a redevelopment scheme and earmarked for housing or commercial building – the town hall planning department is a good place to start your enquiries. The planners may be able to give you the precise boundaries of the site, which could be important later. But, although every planning authority has plans for all the land within its area, that doesn't always mean it knows who owns a particular piece of land.

There are no fees for enquiries to the planners, but you may have to do a search with the Land Registry – a national government agency – and they will charge. Details about the Land Registry can be found on its website **www.landregistry.gov.uk** Surprising as it may seem, not all land is registered so you may come up against a proverbial brick wall. Should the ownership of a site be unknown to planners and the Land Registry, it could be very hard to discover the owner. There may even be a dispute over ownership. You may be better off giving up on such a site.

Community asset transfer

One promising development in recent years has been the community asset transfer scheme aimed at encouraging local authorities to transfer ownership and control of redundant property to the community. In practice, most of the existing examples involve buildings such as schools and offices that are no longer in use. Your group may have no interest in taking on buildings, but if the buildings have land attached you might join a consortium with other groups to take on the site.

Is any site suitable?

A site that is contaminated in some way is likely to present a health risk if food is grown and consumed from the land. You need to know the nature of the contamination and if it could be removed or remedied at all. With some contamination – for example, solid industrial waste, metal or plastics – you could introduce boxes or raised beds with imported soil or compost to grow your produce initially and, bit by bit, bring the land back into use. Other forms of contamination – toxic chemicals or radioactive materials, for example – would be considerably harder to work with and might require expert professional help.

If the land is capped with tarmac, as in an old car park or school playground, raised beds and boxes would be feasible, but you need to be in for the long haul to justify your efforts. If you are looking for a temporary site, look elsewhere.

Sites allocated for development might be usable for a short-term project if the development is not scheduled to start for some months. The owners or developers may agree to turn over a part of the site until it is needed. This may allow you to launch your project and give you time to find a more permanent home. Such agreements have been made, so it's not as fanciful as it may seem.

Negotiating for access

Let's assume you locate a site and its owner, what is their interest in letting you have access to it? It's unlikely you have the money or could raise this to buy or rent the site, assuming it was available. The purchase price or rental cost of urban land is likely to be prohibitive for a community group.

But you could come to an agreement with the owner or the agents. They might agree to allow you to use the site for a limited period – say five years – which might then be reviewed.

You have some negotiating assets. You would look after the site and protect it from vandalism. You may offer to fence it if it is open. You could clear it of rubbish at no cost to the owner.

Responsibilities

You will need public indemnity and public liability insurance if you intend to work on the site. This should mean that you and the owner are protected against damages in the case of an accident to the public or a member of your group. Agricultural work is inherently risky, and insurance is an absolute necessity.

As you are changing the use of the site, check with the planning authorities to find out if you need planning permission. Do not undertake any work on the site until all required permissions are given. If you are refused planning permission by the local authority you can appeal, but this is likely to take time. Even if you don't need planning permission to start growing produce you may need it for other reasons. As the site develops and you expand your activities, the group might want to think about erecting a secure storage area for tools, as a place to shelter if it's raining or for relaxation and refreshment. It may be worth applying for permission, if necessary, for erecting a building – although temporary structures without foundations are usually excluded from planning requirement.

If you do take control of a site you may need to take extensive measures against vandalism – particularly to protect growing crops and livestock. If it the site is to be used by vehicles (for example, in moving crops), traffic planners will need to be consulted. There are potential problems if vehicles park on the main road, and there is an increased risk of traffic accidents when vehicles leave the site to join the highway.

There is admittedly a lot to consider but you need not try to do this on your own and as has already been stated the local authority is a good starting point and there is some support for growing food although the manner in which you want to do it may not be the shared by your a local authority. In truth planning departments willingness to support your group varies tremendously between councils so in some cases they will give maximum support in others you may have to push them a bit so don't be timid and keep asking the questions you want until you feel you understand the situation. As well as the planning department involve others and try to get your local councillor to support your activities. Even in these times of limited money it all still very possible.

Although really beyond the scope of this particular module for those living on the edges of their town and cities they should not forget the peri urban farmers. Contact with them could mean that they might be willing to let out a field for local growing projects and in some cases could be encourage to develop pick your schemes. Once again, it a case of going and exploring.

Mapping and the community

Since the launch of Google Maps, interest in mapping has grown beyond the realm of planners, academics and policy makers. But you should consider what value maps might have for your project. It's obviously useful to be able to point to a location on a map showing your site, and you will need map coordinates to request a search with the Land Registry. Maps could also be included in any reports and presentations you produce in support of your initiative.

If your project happens to extend over several distinct sites, a map will undoubtedly help you coordinate your activities, but this is a rare and special circumstance. In the vast majority of cases, planning and day-to-day management is better served by a walk round the area than by consulting a map.

Other people who might be helpful

If there is a university in your locality, it might be worth seeing if they have an interest in what you are doing. They might, for example, have a department studying planning land issues. Staff or students might be willing and able to assist, either as a way of connecting with the community or, possibly, for research or practical teaching purposes.

There are plenty of groups addressing local issues who could be useful. Partnerships can help hrough magnifying knowledge of funding opportunities and local resources – experienced people or friendly experts who might help with tasks such as administration, legal work, raising money or contacting landowners..

Module 2

FOOD PLANT PRODUCTION

Introduction

This module looks at a number of the important issues involved in growing food. This is a very broad subject and we can only hope to touch upon some of its more important aspects. The module does not cover livestock rearing although we recognise this is a growing area of interest among urban farmers, horticulturists and gardeners.

Growing plants, either for food or decorative use, is an area where information and expertise is common. This module concentrates on the basics. As learners become more involved they can seek out more detailed and specialist information covering their interests, such as soft fruit or root vegetables.

Growing conditions – for example, soil type and drainage – vary across the country and even at a very local level. In this module we alert learners to the importance of variable growing conditions and provide an outline of how these may effect production.

Growing any sort of plant is as much about experience gained through trial and error as it is about prior knowledge. For example, text books may indicate you have classic growing conditions for a particular plant but which, in practice, never does well on your site. Or you may find something prospers on your site which the same book says shouldn't be grown. The reasons may be your particular practice but are more likely to be related to very local conditions. Only trial and error will provide the guidance you require.

In this module

This module covers a number of issues connected with preparing land, understanding local conditions and tools and techniques for growing. Among the topics dealt with are:

- **Site preparation**
- **Plant propagation and cultivation**
- **The importance of local conditions**
- **Tools**

Exercises

There are few practical exercises that can be undertaken within a classroom context. Outside of classroom time, visits to allotments, gardens or other growing areas are always useful, and visits to garden centres can introduce learners to the wide range of available seed, plants, growing media and tools.

It may be worth inviting experienced growers from the area to come and talk to the group, or learners may wish to share experiences and ideas. Learners should also be encouraged to scour libraries, bookshops and the internet for information, contacts, suppliers and other people's experience.

Expected Learning Outcomes

- **Learners will gain the confidence to start growing plants, and will acquire an appreciation of the complexities of the task. This will allow them to understand that successful plant cultivation requires long-term engagement and will help them overcome inevitable disappointments. They will be introduced to the differences between organic, inorganic and 'stock free' cultivation and will be encouraged to develop their own perspectives on these and related issues.**
- **Learners will gain a basic understanding of the techniques and tools necessary for plant cultivation and will gain an awareness of the importance of local conditions. Learners will acquire an understanding of the value of experience.**

Resources

- **Although the learner is unlikely to find many books about urban agriculture, there is a mass of material on plant cultivation, rearing livestock such as chickens and pigs, and looking after and developing small plots.**
- **The traditional routes to city-based growing have been through gardens and allotments. Start looking for resources aimed at gardeners and allotment holders.**
- **Local libraries and second-hand bookshops almost always have a section on gardening where useful books can be loaned or bought cheaply. On the internet, Abe Books www.abebooks.com and Amazon www.amazon.co.uk will allow you to shop globally (particularly for second-hand and rare volumes). You can find bargains on The Book Depository site www.bookdepository.co.uk.**
- **There are a number of websites about urban agriculture, including Urbanag's (www.urbanag.org.uk), although they tend to cover a wide range of topics on the subject and may not be the best places to look for practical advice. It's probably better to go to a gardening site. You may find blogs and forums are useful if you have particular questions. The BBC's *Gardeners' Question Time* programme can now be downloaded as a podcast www.bbc.co.uk/podcasts/series/gqt or listened to online www.bbc.co.uk/programmes/b006qp2f/episodes/player – every programme since 31 July 2009 is available.**
- **There are a number of national and local organisations – gardening and horticultural clubs, for example – where you can meet and talk to experienced growers who will generally be happy to pass on information.**
- **You might try to contact peri-urban farmers, who farm on the edge of urban areas. Their methods might be very different to yours, although some are quite small (2 – 3 acres), but they will have a wealth of information about local conditions and an understanding of general issues such as drainage and fertilisation. If you wish to run your site as a commercial enterprise, it is well worth making contact with peri-urban farmers. There is substantial evidence from across the world to show that close cooperation between urban and peri-urban farmers can be mutually beneficial.**

Notes

Before planting a seed, a seedling (a small plant grown from a seed) or transplanting a cutting from a mature plant, it is essential that the site where cultivation will take place is prepared in order to give the best possible advantage for plant growth and the production of healthy crop yields.

The usual way in which plants are grown is in soil, compost or a mix of both. These are described as "growing media".

Soil

Getting to know the local soil and the physical conditions it exists in is an essential aspect to understanding plant growth capacity. Soil is made up of two basic ingredients:

- **Tiny particles of rock**
- **Organic material known as humus (rotted down material, which may be of animal or vegetable origin – animal material can include animal waste, insects, birds and other small creatures)**

Mineralised soil

Good soils have the right balance, although quality of soil can be affected by the type of rock or humus rather than simply the volume of the two. Urban soils sometimes have too much mineral or rock content and not enough humus, particularly where some sort of development has taken place in the past. They are said to be "mineralised". In these situations compost must be added.

Compaction of soil

Another common characteristic of urban soils is that they are often compacted as a result of people and traffic compressing the surface as they move across the soil. This compaction prevents air and water passing through the soil and in the worst cases inhibits root movement and development. Again, compost will help alleviate this problem by creating a more sponge-like profile of the soil.

pH of soil

pH means "power of hydrogen" which in practice is the level of acidity or base a material has. Base is more commonly referred to as alkaline. Learn about your soil's pH as it can vary quite a lot over a single site and to some extent over a season. The type of plants you grow can also change a soil's pH levels so try to find out before planting and check from time to time for any change. This can easily be done with the help of a soil meter or litmus paper which changes colour depending on pH.

Most plants will grow in neutral soils and most vegetables favour these conditions. This is between 5 or 6 and 7 or 8 on your meter. A reading below 5 on the meter scale indicates acidic soil; above 8 indicates alkaline soil. There are many soil type test processes which are available from garden centres along with the instructions and how to read the results but further study is strongly advised.

Compost

Compost is decomposed plant remains, which could include organic waste from the kitchen, such as potato peelings, that has rotted down to a generally dark brown mixture which may or may not contain soil. If it is obtainable commercially in your area it could also include the manure from vegetable-eating livestock such as sheep, cows and horses.

Compost contains some or all a growing plant's needs for nutrients (food for the plant). The volume and variation of these nutrients in the compost may be enough for the period of a plant's growth, although this is unlikely and the growing medium will need the addition of nutrients during plant growth to ensure health.

The quality of compost is determined by two major factors:

- **The materials the compost contains**
- **The processing of these materials by the operator**

You may start by buying compost. This is widely available in garden centres or from horse-owners, mushroom growers and others. It is not expensive, but you may wish to save money by producing your own. Compost needs time to rot down. The process can take months. This means you need a storage area for the waste products you will use. You can use wooden palettes to contain the waste. Avoid cooked foods and animal or dairy produce from the kitchen – unless you have an anaerobic digester or similar advanced processing operation – since these can cause the spread of viruses which could attack your plants. Also avoid citrus peel which does not rot easily. Within a year or two you will also be able to recycle waste from your site, which is good site management.

Basic composting requires you to regularly turn over the waste as it rots down to evenly aerate the mixture. Compost bins are designed to help minimise the amount of turning over required by encouraging natural air flow. They can be made of plastic, wood, wickerwork (usually hazel twigs) or metal (galvanised steel or wire-mesh cages) in volumes from about 80 up to about 1,000 litres, costing between about £30 and £100. Some bins are mounted to allow you to 'tumble' the compost, which speeds up the composting process. Another technique for speeding up the process involves the use of a compost-making mixture containing microbes and enzymes. Read up on the subject to help guide you through the process.

Fig 1 Typical small site compost bins made from wood and plastic

Crop distribution and rotation

It's most likely that you will be growing a variety of plant types rather than producing a single a crop. In this case the site will be divided up into a series of growing areas each producing particular crops. It is good practice to change the crops around on a yearly basis. Known as "rotation", this was the mainstay of British farming prior to the use of industrial scale fertilisers and other chemicals.

Changing the crop in this way also helps the soil retain nutrients as different plants take different nutrients from the soil, and some actually add nutrients. More importantly, rotation helps prevent the build up of viruses and pests in any one part of your site. Particularly important in this respect is the role of leguminous plants (peas and green beans, for example) and, according to some, onions in "fixing" nitrogen in the soil. Nitrogen is a very important nutrient for plant growth.

If you had four growing areas on your site, you might follow a pattern of growing in the different areas such as that shown in the chart below:

Plot	Year 1	Year 2	Year 3	Year 4
1	Potatoes	Brassicas	Legumes	Roots
2	Roots (carrots, parsnips etc.)	Legumes	Brassicas	Potatoes
3	Legumes (peas and beans)	Potatoes	Roots	Brassicas
4	Brassicas (cabbages, sprouts etc.)	Roots	Potatoes	Legumes

Fig 2 Typical planting table

The Norfolk Rotation system includes barley and other grains and leaves some land fallow for periods. The fallow land may be left for grass and can be used for grazing. This was the basis of much British crop management for the best part of two centuries and only declined once large scale chemical fertilisation was introduced in the early 1960s.

Site preparation

The physical state of the site is as important as its chemical composition. In traditional farming, plant growth often requires the soil to be ploughed. Digging over the soil is the equivalent for smaller sites. If your site warrants it and you have the means, a small mechanical tiller can make the job less onerous (see Fig 10 below) although you may still need to do some fork- and spade-work after a tiller is used to ensure that the soil is completely processed.

Digging a short depth from the surface with a spade and fork helps break up the soil in order to facilitate planting, and helps the flow of liquids and gases, particularly air.

If dug over in the winter frosts may reduce viruses and other pests as these may be exposed to the cold. Compost material or manure is generally added at this stage at the bottom of trenches.

Below are examples of how the surface can be dug over. Double digging, or full trenching, is the best general purpose technique.

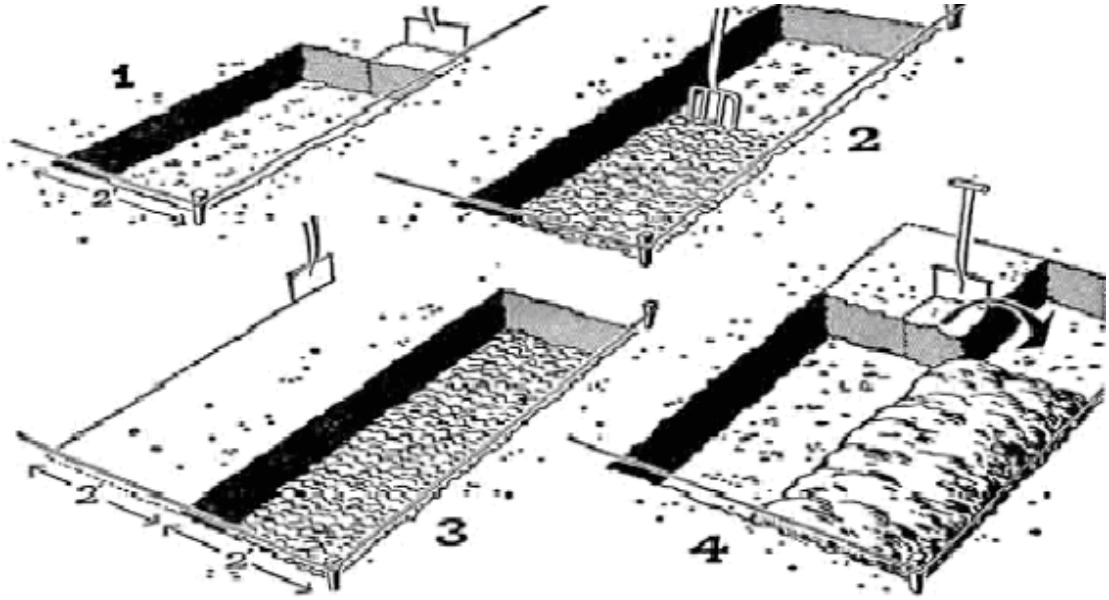

Fig 3 Double digging: 1. Open a trench and remove soil to the end of the plot. 2. Fork over the bottom of the trench to aerate the soil. 3. Mark out a new trench of the same dimensions as the first. 4. Turn over the soil from the new trench into the first trench. Continue until the whole plot has been dug over.

Ridging is often used for planting potatoes and other root crops, while single digging is most useful for small sites.

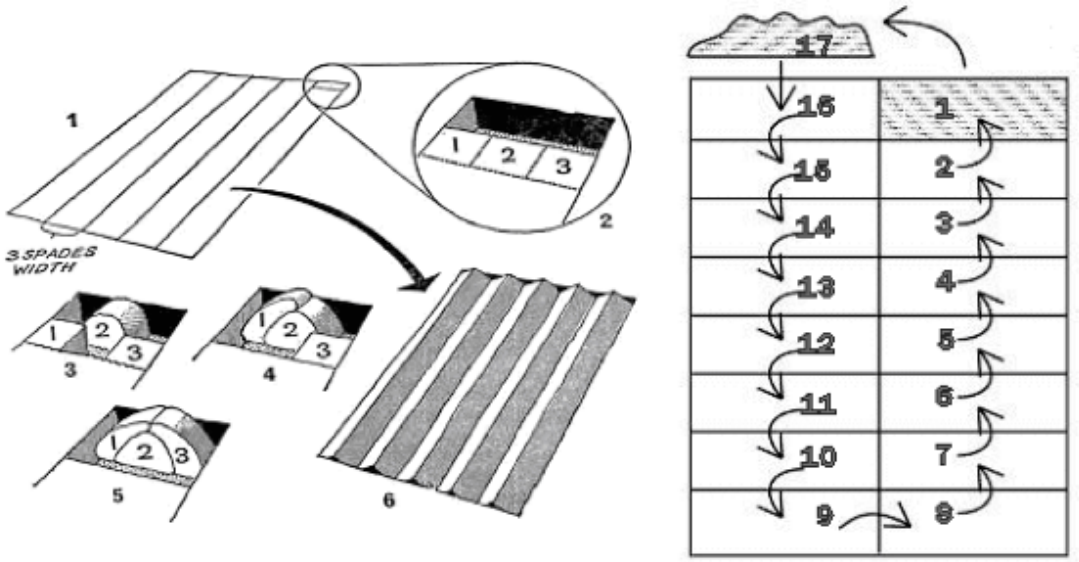

Fig 4 Ridging: 1. Mark the site into strips, 3 spades wide. 2. Dig a trench as long as the strip is wide. 3, 4 & 5. Mark out an area the same size as the trench and move spadefuls of earth from here into the trench, shaped to form a ridge. 6. A completed ridging system. Fig 5. Single digging: Divide the site into as many equal strips as required, remove the soil from the strips in turn, replacing it with soil from an adjacent strip. Fill the final trench with the soil from the first strip.

An increasingly common way of preparing a site it is to divide it up into a series of raised beds, as pictured here:

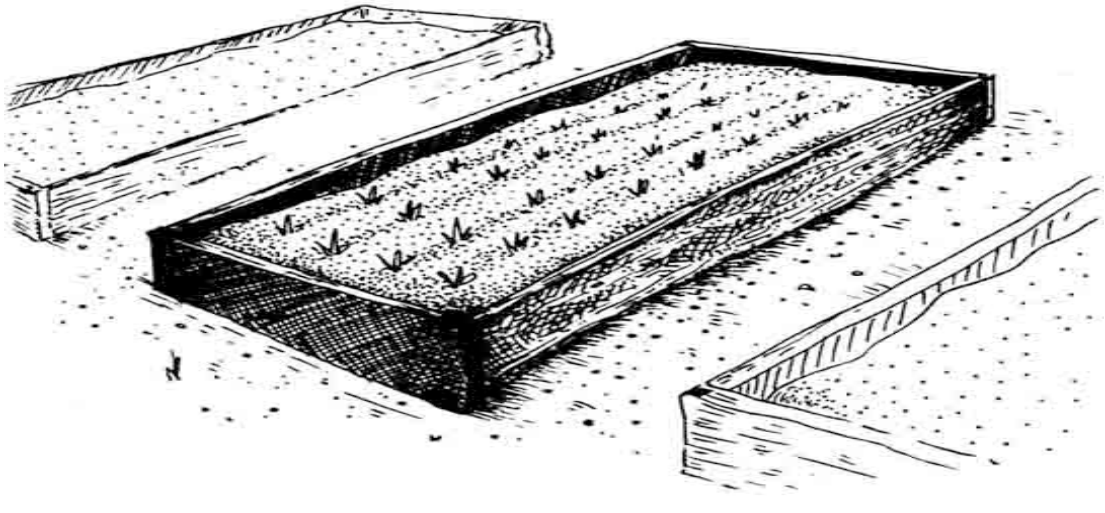

Fig 6 Raised beds – should be about 8 or 9 ins to 1 ft or between 20 and 30 cms high

These sit on the earth below. By raising the soil level in growing areas, you intensify nutrient concentration through increased soil volume and preventing seepage through the sides. The sides can be made from wood panels or even more permanent materials such as brick, concrete or stone. Raised beds will still require digging over. By allowing enough space between the beds, you can avoid any compaction of the growing area.

Once a site is ready – and at the appropriate time of year – you can start planting.

Plants, seeds and propagation

Strictly speaking, propagation is the reproduction of a species but in agricultural and horticultural jargon the term is widely used to refer to the processes by which we support plant growth. You can grow plants by:

- **Planting seed directly into the ground**
- **Replanting partly grown plants**
- **Planting out seedlings that have been started in a greenhouse or similar shelter**
- **Planting out cuttings from growing plants**
- **Over your time as a grower, you will probably gain experience in all the types of plant propagation listed. What does each offer?**
- **Planting seeds directly may be the only option if you do not have access to a greenhouse, polytunnel, cold-frame or other area where young plants can be protected against adverse weather conditions such as frost or heavy rain. After sowing the seed (see Fig 7 below), some thinning (or "pricking") out of the weak plants will be needed to give stronger and more vigorous plants more opportunity to grow. With most direct sowing, it's probably better to be a bit late in the planting season than too early, especially if your area is prone to late frosts.**
- **Buying plants that are already growing is much more expensive than growing from seed. However, you won't need to thin out as you should only plant healthy plants. Obviously, the cheaper a seedling or young plant, the more the balance moves away from seeds which require more work and more expense to bring on. But beware. Sickly or damaged plants are often sold cheap, but are rarely a bargain. It is often more economical to grow long lived plants ("perennials") such as fruit bushes or trees from seedlings, while plants that need replacing each year ("annuals") or every two years ("biennials") – typically, plants grown for edible leaves and roots – are cheaper to grow from seed.**

- **If you have a shelter such as a greenhouse, cold frame or polytunnel (see Fig 8 below), planting seeds in boxes or other containers within the shelter means you can start growing earlier in the season. It is also easier to remove weak plants before planting out on site, and it protects plants when they are weakest. This requires space for sheltered areas and the money to build or buy the shelters – although many people grow from seed indoors using small propagators (usually electrically warmed and covered trays) and moveable plastic greenhouses are relatively cheap and can be placed in any convenient small area. Shelter also allows production of plants that are unsuited to open areas. These plants might**
  - **not like the soil but can be grown in another type**
  - **originate in warmer or drier areas of world and need extra protection all year round**
  - **need protection from wind (this can often be arranged using wind shields)**
- **Growing from cuttings means you can reuse your most successful and productive plants. This is a process common among commercial growers who don't want to risk new plants which might be less successful than their existing stock. Cuttings are usually best started in the greenhouse and often require particular attention to ensure growth until they have fully rooted and can be planted out.**

The warmer environment of the shelter increases evaporation and you will need to water plants regularly whether it rains or not outside. It is not difficult to kill a plant by overheating. You should also be sure to protect young plants from draughts.

Cold frames – which are often little more than an open box covered with a sheet of transparent glass or plastic – are sometimes used to provide an intermediate environment between greenhouse or polytunnel and open site. This may help plants adjust to their new conditions. Obviously, they may be used for plants needing less shelter or warmth than is afforded by the greenhouse or polytunnel.

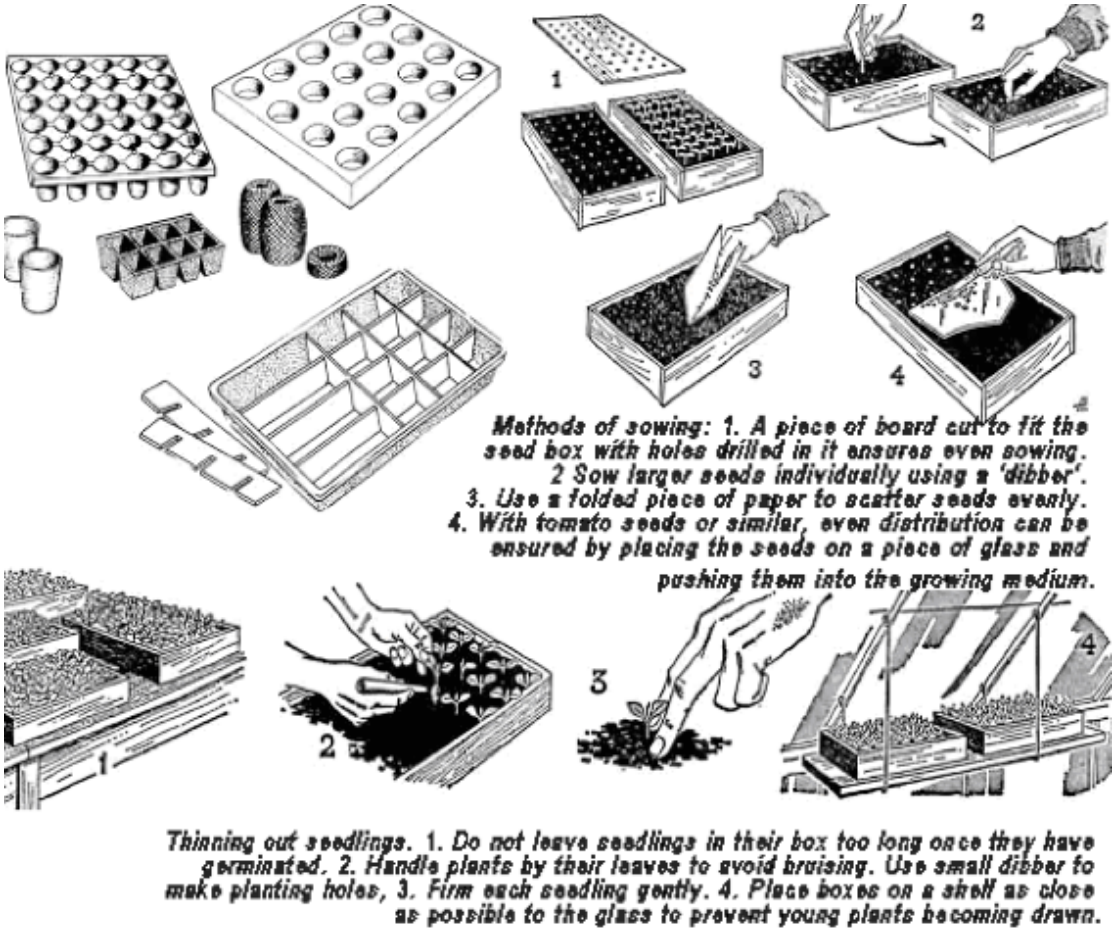

Fig 7 Seed pots of various types, methods of sowing and thinning out

Shelters

A greenhouse is normally a permanent structure with a wood, metal or plastic frame and glass, clear plastic or Perspex panes to allow sunlight in and act as a heat trap. The best types have some form of adjustable ventilation to ensure they don't overheat in the warmer weather but maximise heat retention in the cooler months.

Polytunnels are less expensive alternatives to the greenhouse and are often not permanent. They are commonly shaped as a tubular or half-tubular frame, covered with a flexible clear plastic covering. They range in size from those only large enough to cover a few plants, which can be rolled back as desired, to those which can accommodate a person standing, often with doors and ventilation.

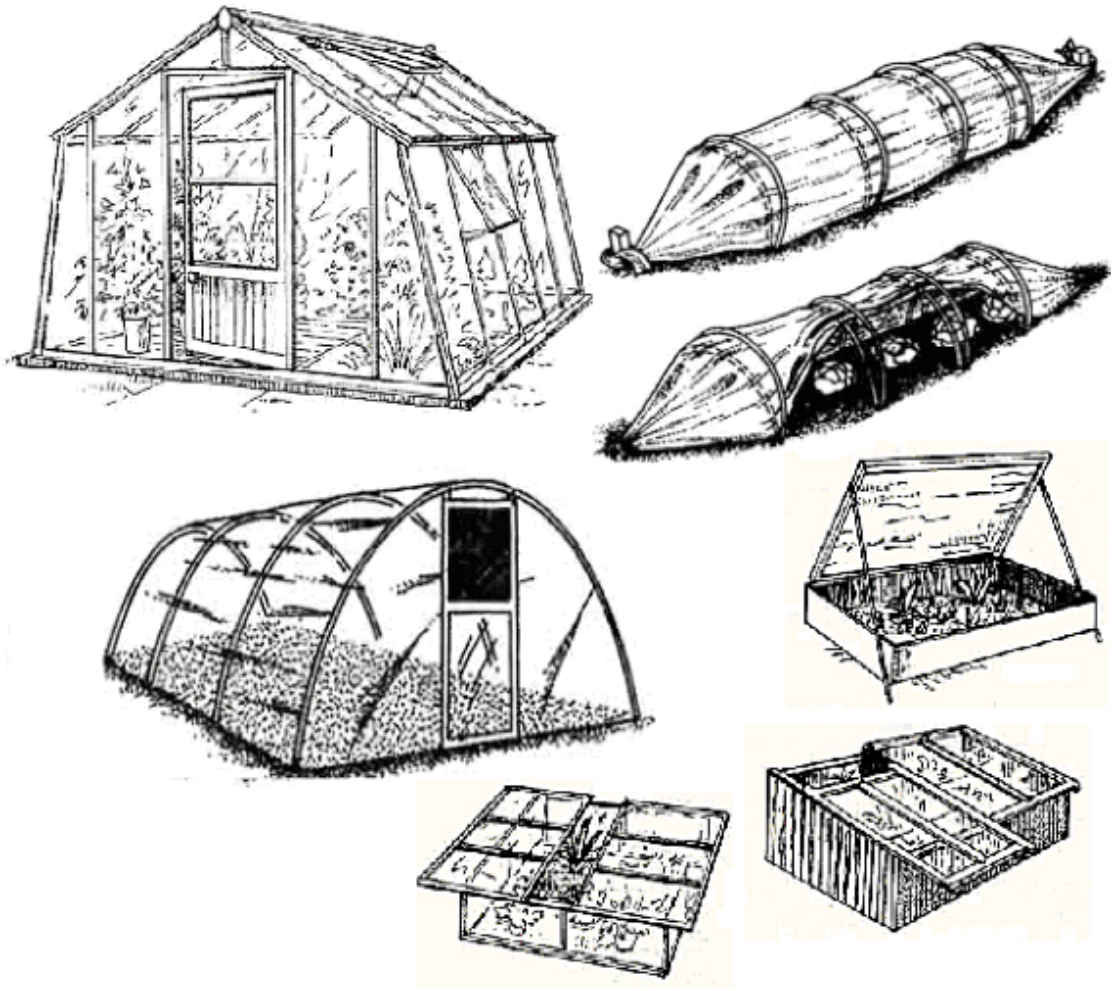

Fig 8 Clockwise from top left: A typical greenhouse, a ground level polytunnel (closed and open), 3 types of cold frame and a walk in poly tunnel

Plant maintenance

Once planting has been completed, the next job is to maintain the plants through feeding, watering and "weeding" (removing unwanted plants from the growing area). Weeds can arrive by air, blown as seeds from site to site from a parent plant and settling on the ground where they can germinate and grow. The dandelion flower is a well known example of a plant using wind to disperse its seeds. Other seeds are spread by birds and small animals. But most weeds are already in the soil and some arrive in compost which has not been fully rotted. Unwanted plants on your plot will compete for space with the ones you want to grow, and many weeds are rapid growers and use up nutrients in the soil. At worst they could cause your plants to die; at best, they limit their growth and decrease your crop.

Once upon a time all weeding was done manually. On a large site this would be a considerable task. Today, weed control is often achieved through the use of weed killers with only minimal manual extraction.

Weed killers, known as herbicides, chemicals used to control insects, known as insecticides or pesticides, and fertilisers (plant food) come in two main types often referred to as “organic” and “artificial” or “synthetic”. Both types are made from chemicals. Organic types use naturally occurring plant material as their basis and do not include industrially produced chemicals, while artificial types are derived from oil or other industrially produced compounds and are often completely lacking in natural plant ingredients.

Some people are opposed to the use of artificial herbicides, insecticides and fertilisers on the grounds that they present health risks to humans and are damaging to the environment. Synthetic insecticides, for example, may not discriminate between ‘friendly’ and harmful insects, killing creatures that would otherwise do the job for you (for example, ladybirds which suppress greenfly). Their misuse can certainly cause soil to become toxic (a term which implies the substance is capable of damaging an organism) and leads to soil degradation, but they can have benefits if used correctly.

Organic fertilisers, for example, may not encourage the most abundant crop, which can be important if you are considering selling your produce. Similarly, organic weed killers may only suppress weed growth slowly and for a limited time, while synthetic compounds act extremely quickly and thoroughly to kill weeds.

The decision to use chemicals is yours. You should read the instructions on any chemicals deployed on your site, and consult books, magazines and websites to help you understand the issues.

Tools

Don’t rush out and buy every tool you think you might need. Start with a modest number of essentials and build up from that on the basis of your experience and needs rather than believing what catalogues tell you. You can spend an awful lot of money on tools that you never or rarely use and that you may be able to borrow from others. Buy a few good tools from reputable manufacturers. Cheap tools are rarely satisfactory and may be a false economy. But don’t be afraid of used or shared tools. Car boot sales, online auctions and local swap schemes are all potential sources of quality tools.

The most basics set of tools would include a spade with a strong shaft and handle and a clean cutting edge, a fork with a strong shaft and handle and sharp metal spikes, a Dutch hoe for weeding, a straight rake and a few small tools such as a fork, trowel and a good pair of secateurs. It could be some while before you need anything else.

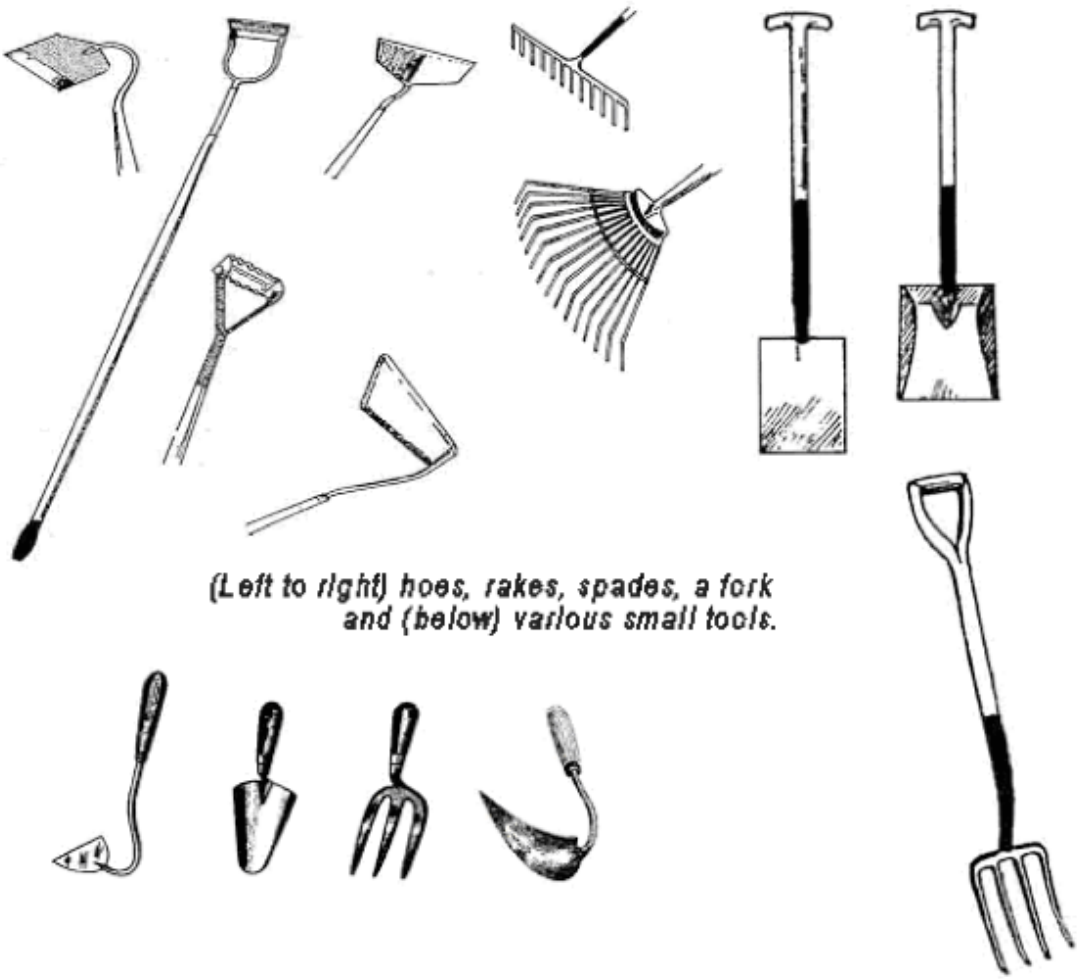

Fig 9 Selection of hand tool. You should find out what each is and what it is used for

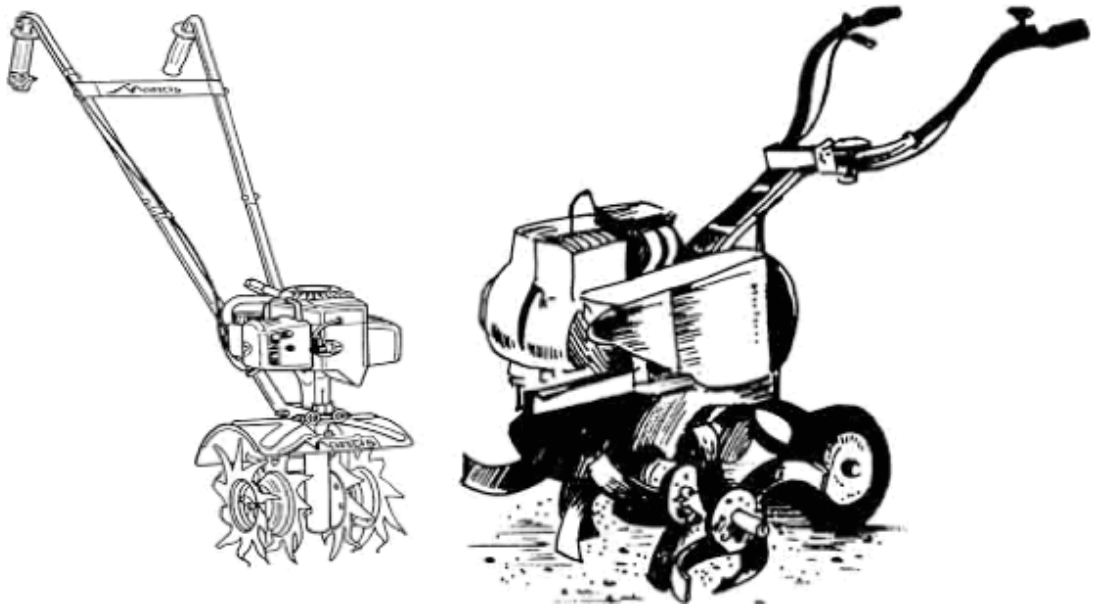

Fig 10 Mantis and Merry tillers

Ecological, environmental and financial restraints

Plants are often divided into native and exotic species. The difference is between plants considered indigenous to Britain and those which have been knowingly introduced into the country. It's a very imprecise distinction and, when it comes to food plants, almost meaningless.

Most of the food we grow in this country has its origins elsewhere. Even if a plant is native, it is highly likely that it was originally cultivated elsewhere in the world. However, that doesn't mean that anything can be made to grow here.

Plants from warmer climates usually need sustained high levels of direct sunlight to produce the sugars that give them their distinctive tastes. This is not a characteristic of the British climate. The growing season of a plant in its native setting may be longer than British growing seasons (which themselves vary from north to south).

Greenhouses and other shelters can help exotics on the edge of their native environments, but a greenhouse won't do the impossible. Some commercial growers use heating and extra light in greenhouses. This is a questionable ecological practice and is prohibitively expensive unless the crop is of high value. It may be justifiable to use heating during cold snaps but you should balance costs and gains.

Start with plants that are known to grow in your region. If you are growing for sale, make sure there is a viable local market for your produce. This can be quite a complicated matter.

If tomatoes are widely available in your area, for example, there is unlikely to be much demand for your tomatoes. But you might be able to stimulate demand for an unusual variety. If you grow organically, you should approach organic outlets, although they may want to see Soil Association certification.

That said, the local food market is driven in large part by a resistance to the environmental cost of importation. Some imported food varieties might be grown locally. Tomatoes are a good example. A little research could reveal that there are historic local foods – asparagus is a good example – that are no longer grown in a given area. You could revive the market.

URBANAG

Module 3

MARKETS AND OUTLETS

Introduction

The issues covered in this module cannot be taken in isolation – in fact, many people would say that in the analysis of food systems, the consideration of markets and outlets is of central importance. In this view, everything in the food supply chain – from 'farm to fork', as the expression has it – revolves around the process of acquiring food.

In the earliest societies (and to this day in surviving tribal cultures) food was often acquired by collection – 'hunting and gathering'. The development of farming, in which food is acquired by cultivation, began the long march of civilisation, and created a critical division between those who produce food and those who consume it. In this division, markets play an essential intermediary role – bringing producers and consumers together so that a transaction may be effected.

The first issue you, as a grower, will need to consider is to decide what your purpose is in growing food. Answering this question may lead you to the market, but there are three broad approaches the urban farmer may take to distributing their produce:

1. **You could grow food for personal consumption. This is the easiest thing to do, involving little risk, no regulations and no return. It may save you money – although that is not guaranteed – and may satisfy an understandable urge for authenticity in what you and your family eat. This is the best approach if you cannot or do not wish to grow in volume – for example, if you have a small garden or rent an allotment. You should bear in mind that growing food always involves hard physical work and requires round the year activity.**
2. **You could barter food. This too involves little risk, no regulations and no return, but it may help support alternative trade which can be more rewarding than growing for personal consumption alone. It can also add variety to your diet, particular if you grow large enough quantities of a single food.**

3 **You could grow food as a commodity. People will buy food, if only because it is one of the essentials of human life and is a major element of the work-money-spend routine that characterises almost all of our lives. But a whole institutional framework has grown up around the purchase of food, including farms, wholesalers, markets, shops, restaurants, pubs, schools and social services. You will need to understand how this framework operates and how it is regulated. You should also be aware that local byelaws may forbid the sale of food grown on allotments or in gardens. If you plan to sell to local consumers, you need to acquaint yourself with the law as it may affect your enterprise. You should also assess the size of the market for local food in your area. On a national level, it is tiny (about one per cent of the total food market by value) although it is increasing and is certainly going to be unevenly distributed.**

In this module

This module covers the supply of food, examining the reasons why you might decide to provide food for others and whether to attempt to generate an income from such an activity. Food growing is at one end of a sometimes lengthy supply chain and negotiating the demands of storage, preparation, packaging, distribution and sale can be fraught with difficulty. The module looks at some basic issues in food supply including:

- **Researching the market**
- **How to price food**
- **How to add value to it**
- **Food standards and hygiene**
- **Food labelling and legal requirements**

Exercises

The exercise is designed to get learners to think about the mechanics of selling their produce. Accurate answers to question 1 are not essential, but the calculation should leas to group discussion around the other three questions.

1. **A small parcel of land produces 1,500 kilos of strawberries per year. The growing season lasts 100 days. It costs £500 to buy fertiliser, pesticides, fencing and new plants every year. Rent on the land is £9,500 and 2 external contractors can pick and package the crop working 8 hours a day on minimum wage (assume this is £6 per hour). Packaging costs 10p a punnet and each punnet contains 0.25 kilo of strawberries. What price per punnet would the growers need to charge to break even, assuming they sell the entire crop, for:**
   - **road side sales (no overheads) ?**
   - **supply to a supermarket (assume supermarket takes 50%) ?**
   - **market stall (stall rental costs – assume cost is £30 per day for 28 days) ?**
   - **Pick Your Own (no overheads) ?**
2. **What other costs can you think of?**
3. **What does your local supermarket charge for British strawberries – and how do they do it?**
4. **Think of ways in which to increase your sales revenue.**

Expected Learning Outcomes

- **An understanding of the food supply chain and how local growers may fit into it or service it**
- **The ability to research the food supply environment within the area in which local growers are operating**
- **An understanding of the practical and legal requirements local growers may need to satisfy if they choose to supply food**
- **An awareness of the options for promoting, marketing and adding value to the food produced by local growers**

Resources

- Food Standards Agency http://www.food.gov.uk
- FSA Guidance Notes – a complete list, with links to actual documents, of the FSA's notes on food safety and operating a food business: http://www.food.gov.uk/multimedia/pdfs/fsapublishedguidance.pdf
- Keeping Food Safe – archived pages from the FSA's Eat Well site, which has been taken down: http://tna.europarchive.org/20100929190231/ http://www.eatwell.gov.uk/keepingfoodsafe/
- Sustain – a campaigning and policy development organisation that offers support, resources and advice to the whole range of alternative food enterprises: http://www.sustainweb.org See their 'Local Action on Food' section, particularly the page on selling food. http://www.sustainweb.org/localactiononfood/selling_food/
- Plunkett Foundation/Making Local Food Work – a wide range of useful resources for anyone wishing to set up a local food enterprise: http://www.makinglocalfoodwork.co.uk
- Grow A Grocery – a free guide to setting up a co-operative grocery, from one of the UK's most successful examples, Unicorn in Manchester: http://www.unicorn-grocery.co.uk/grow-a-grocery.php
- The Glebelands Market Garden – now operating in Wales, Glebelands was launched to supply the Unicorn Grocery with salad produce. Their website offers a range of useful advice including a comprehensive analysis of how to go about selling vegetables: http://www.glebelandsmarketgarden.co.uk/vegselling.html
- Food Coops Toolkit – a free guide to setting up a community food co-op or buying group: http://www.sustainweb.org/pdf2/Foodco-opstoolkit.pdf The Food Co-ops website is available at http://www.sustainweb.org/foodcoops/
- Funder Finder – a comprehensive list of all sources of funding in the UK: http://www.funderfinder.org.uk/funding.php
- Business Link – help and advice for new businesses: http://www.businesslink.gov.uk

- **Chambers of Commerce – find the business community in your area:**
  http://www.britishchambers.org.uk
- **High Speed Training offers short courses in food safety and food handling:**
  http://www.food-certificate.co.uk
- **Farmers' markets are good outlets for processed foods – many of them feature stalls selling hot food as well as preserves, cakes or packaged foods. In most cases, you should try your local council to discover where the farmers' markets in the area are and how to arrange a stall, but this site is a good place to start and includes plenty of background information:**
  http://www.farmersmarkets.net
- **National Farmers' Retail & Markets Association. FARMA is a membership organisation representing farmers, growers, producers and farmers' market organisers throughout the UK. It claims to be the only organisation in the UK dedicated to supporting the local direct sales sector:**
  http://www.farma.org.uk/
- **Startups. A website for business startups offering advice on becoming a sole trader, setting up a company, buying a business, raising finance, social enterprises, franchising, working from home, keeping accounts, the law, tax and more. Despite a clear London bias, this looks like a useful resource. It contains some valuable information about starting a market stall, a café or coffee shop, a sandwich shop and a retail outlet:**
  http://www.startups.co.uk/

Notes

Starting up

Starting a business selling food can be daunting. Profit margins are small, even for established high-street names, hours are likely to be long, and competition intense.

Experience suggests that a new business should not expect to become self-sustaining before 18 months, but many businesses will lose money for three years or more. For many, the main objective is never to make a profit but to do something worthwhile – providing access to green space; helping deprived communities, the unemployed or people with learning difficulties; addressing climate change or the manifest problems with our existing food system; creating opportunities for skills development and enterprise development; providing culturally significant foods for ethnic communities.

In any case, you will almost certainly need financial support in one form or another. You may use your own money or get a group of like-minded individuals together to gift or lend money. Social banks, like the Co-op or Triodos may offer loans at competitive rates to community enterprises. They will, in any case, offer useful advice. Other banks are likely to require security in the form of guarantees or assets such as buildings.

A number of organisations offer grants which require a certain amount of bureaucratic paperwork – a good place to start looking is the Funder Finder website. Once you have started with a loan or grant, look for opportunities for support from organisations you can work with – churches or faith groups, health authorities, school meals providers or other businesses.

A good example of how you might proceed is offered by the not-for-profit business Ecoworks in Nottingham. Ecoworks has a small market garden (about 400 square metres or one tenth of an acre), a similarly sized mixed fruit orchard and a comparatively recently acquired 13 acre permaculture site. It runs activities around food growing for disadvantaged people and users or former users of mental health services, and operates a café and box scheme using its own produce. It has been running a community garden since the 1990s and has grown slowly. It plans to become self-sustaining by 2014. Ecoworks survives thanks to support from NHS Nottingham, the Big Lottery's Local Food Fund and The Tudor Trust.

Identify your market

You should start by identifying the possible outlets in your locality. This will require a little research.

The options will depend on what you are producing – there will be different outlets for fresh fruit and/or vegetables, washed and packed salad, and meat or dairy produce, to take just three more-or-less broad categories of produce. You may wish to add value to your produce by processing it (see Module 5). In any case, you will need to consider whether you intend to supply retailers or market traders, develop a bag or box scheme, sell direct to the public from your own market stall or shop, sell to canteens and restaurants, or provide a mix of approaches.

While direct sales may allow you to maximise the price you can sell at, supplying retail outlets or restaurants will give you access to ready-made markets.

Box and bag schemes

Starting a box or bag scheme offers a compromise, particularly if you can persuade public organisations like churches or libraries to become distribution/sales points for your boxes or bags. Avoid distributing the boxes or bags yourself – it makes much more sense to persuade the buyers to pick up their produce themselves, as happens in a large box scheme that operates in the Cleveland area in Ohio. You will, of course, need to advertise the service and collect orders.

In a number of cases, these schemes operate on a membership basis, which minimises your risk. Start by advertising the scheme with leaflets, posters in public places, on local websites, in local publications or on community radio. Get enough people to pay a membership fee, which should be big enough to cover the first box, then launch the scheme. You may be best advised to join forces with other growers in your area in order to provide boxes with an attractive variety of produce through as much of the year as possible.

To keep the scheme going, or simply to attract more customers, you may consider buying in some produce. For example, Growing Communities in Hackney, North London, has been running an organic fruit and vegetable box scheme for some years. They also run the weekly all-organic Stoke Newington Farmers' Market. The box scheme supplies fruit and vegetables to over 600 households across Hackney. They use a variety of sources – salads and leafy greens from their own organically certified urban market gardens; potatoes and apples from small farms in Kent and Essex; and oranges from co-operatives in Italy and Spain.

Supplying retail outlets

You are likely to benefit if you can build a relationship with alternative outlets in your area. For example, the Unicorn Grocery in South Manchester is a workers' co-operative that has been supplying fresh fruit and vegetables and vegan food to a wide range of customers for 15 years. All its fresh salad leaves are supplied in season from the three-acre urban agriculture scheme at Glebelands Market Garden about five miles away.

Like many food co-ops, The People's Supermarket – a London-based consumers' co-operative – is prepared to offer premium prices to its suppliers because it is driven more by the ethos of public service and less by the need to maximise profit. "British agriculture is on its knees and its decline has taken place directly as supermarket profits have shot up," according to founder Arthur Potts Dawson. "Our potato farmer was being paid four pence a kilo for potatoes by a supermarket, which would then charge around 90 pence in the store, whereas we've agreed to buy for 16 pence, and sell our 'People's potatoes' to members for 40 pence."

Other valuable outlets include farmers' markets, local whole food shops, and organic cafes and specialist restaurants. Look around. See what happens in your area and look for help, advice and partnerships. It may even be worth approaching schools, hospitals and lunch clubs for the elderly.

Direct sales

You may want to start your own retail outlet. In the first instance, this is likely to be a market stall or a van. A permanent shop or other outlet is worth considering. The building could be purchased or rented. Rental requires a smaller initial outlay, although it will involve more substantial overheads than a stall or van. On the other hand, you may be able to obtain a favourable lease if you find the right location – preferably one with plenty of available empty property. An experienced surveyor may be able to negotiate a rent free period, rent reviews and provision for the owner to cover building maintenance and repairs. Buying a building – especially one you can improve – provides you with an appreciating asset which may be used as security for a loan.

Whether rented or bought, the building should be in an existing retail area (if it's close to a busy supermarket, so much the better). It should be of a size appropriate to your enterprise and allow you to house your sales floor, a back office and a storage area. It should also have room for car parking or be close to a parking zone.

In some cases, you may be able to sell your produce by mail order. This is an ideal approach to selling small, high value items such as herbs or cheeses. There are a number of online markets – typically, aggregators or directory services who charge an annual subscription of around £50 to £100 and a small transaction fee – but running your own website (often alongside a traditional offline business) seems to me more usual. The initial outlay for a site, using PayPal or a similar service to handle sales, can be substantial. Depending on your developer, the price could run from £500 to £5,000 for a fairly basic site, but your overheads will be small – an annual hosting fee in the tens of pounds and a sales transaction fee of between three and six percent of your turnover. On top of these, there is post and packaging to consider; remember, you could be serving a global market.

If your crop is suitable and your yield is large enough, you may find it worth your while setting up a Pick Your Own (PYO) operation. These are particularly popular with soft fruit growers and, with the right planting regime, can operate for five or six months of the year. The advantages of PYO include greatly reduced labour, packaging and transport costs, increased product availability for consumers, reduced wastage, and improved product freshness and quality. For small growers, who can charge more than trade wholesale prices for their produce, a PYO is the single most profitable method of marketing strawberries, blueberries and other soft fruit. The major disadvantages are long hours, which include weekends (probably the busiest time for customers), the need to deal with difficult customers, increased insurance costs, the need for convenient parking areas, and the risk of damage to plants and equipment.

If you opt for a PYO, you will need to:

- **Provide signage and clear instructions for customers**
- **Make sure that enough containers are available to meet customer demand**
- **Advertise as widely as possible and, in any case, with highly visible roadside signs**
- **Check that insurance covers your liability**
- **Take great care when scheduling pesticide treatment**
- **Organise an accessible and well-staffed checkout**

Rules and regulations

You will need to find out about the relevant laws and regulations. The first ports of call should be the local Chamber of Commerce, Business Link office, the national Food Standards Agency and the Local Authority Trading Standards and Environmental Health Departments.

Business basics

If you do not trade under your own name you must display a business name along with an address where legal documentation can be sent. If you use a name that is similar to one already associated with a similar business (for example, if you sell veggie burgers under the name 'McDonalds') you may risk legal action. If you register as a limited company, a limited partnership, a co-operative or a community interest company, you will need to inform Companies House. You will also have to submit company accounts and may be liable for corporation tax. It may be worth talking to a bank and, if possible, an accountant about these and other financial matters.

Registering your premises and vehicles

You may need to register your business with the Local Authority, depending on the amount of time for which the business will operate. The lower limit is typically five days in any five week period.

Registering means letting the relevant Environmental Health Department know about any premises on which you may use to store, sell, distribute or prepare food – including market stalls. You also need to let the authorities know about any vehicles you will be using for food distribution and, in certain cases – for example where you intend to operate a mobile shop – where the vehicle will be kept. Registration is free.

Food safety and hygiene

The Environmental Health Department may inspect your premises to check on food hygiene. It is a good idea if you or someone you work with takes an accredited course in food safety.

Not everyone working for a business needs to be trained, but they should all be made aware of the basic principles of cleanliness and hygiene. Short courses in food safety and handling are widely available – including online – and not very expensive. It should go without saying that if you supply food that is not fit to be eaten, you may find yourself in trouble.

Trading standards

Food businesses need to comply with trading standards legislation – typically relating to labelling, weighing and measuring. All produce sold to the public must be clearly identified with the product name and, in some cases, variety as well as price. Labels should contain required information about contents including:

- **The name of the food**
- **A list of ingredients where appropriate**
- **A 'Use by' or 'Best before' date**
- **Special instructions regarding storage or use**
- **The name of the grower, packer or seller**

Where products are sold by weight, the weight information must be clearly shown to the customer.

There are specific rules for bag and box schemes. The law requires the weight of pre-packed foods to be shown. But bags or boxes of loose fresh fruit and vegetables can be sold 'by the box' if the box contains:

- **more than 5 kg of produce, and/or**
- **three or more different types of fresh fruits and vegetables**

Processed or packed food may require specific labelling information.

Street trading

Market stalls, trailers and mobile stores may require a street trading licence. If you are pitched on public land you will need Street Trading Consent from the Council. This is subject to an annual fee. Before you receive Consent you may need public liability insurance (PLI) and you have to demonstrate that there is no risk to road safety and no possibility of causing a public nuisance. You may be required to consult with local residents and businesses.

On private land (for example, in a pub car park or a church hall) you may not need Consent, but the land owner may need Planning Permission. You should contact the Local Authority planning office to clarify the situation. This is in any case worth doing – if you can develop a good relationship with the planning department, you may find that they waive the fee for your street trading licence.

Insurance

Insurance can be very costly, but for businesses the cost of not having insurance is likely to be considerably greater. If you employ staff or use volunteers, you should have employer liability insurance. Public liability insurance will cover you for any damage to members of the public, which category may or may not include co-op members, occasional volunteers and customers. Make sure that PLI covers you for food-related illnesses that might be your responsibility. Wherever volunteers are involved you should always double check that your insurance covers them.

If you have your own premises and vehicles – which may be bought or leased – you will probably need buildings insurance and insurance for equipment and stock. If you operate from a public building or from within a building owned by another organisation, you may find you are covered by their insurance. It's always worth checking.

Some organisations – for example, the Co-op Bank or the Suffolk ACRE Insurance Scheme – offer insurance or other business services under favourable terms to social enterprises, community groups or co-ops. It is worth looking around to see if you can benefit.

Business plans

If you're seeking financial support, you will need to write a detailed business plan based on your research and market analysis. A business plan can be useful in any case to firm up your ideas and give your operation targets and a sense of direction, but its main purposes are:

- **To identify areas where funding may be needed and possible sources of that funding**
- **To demonstrate to potential investors and partners that the business is viable and meets their criteria for good management and future profitability**
- **To help organisations which provide business support and assistance to understand your business, its aims and requirements**

The plan should identify your business goals using a short mission statement; for example, "*To grow and supply the widest possible range of the freshest soft fruit in the area, at competitive prices and consistent with ethical and environmental principles, for the benefit of the people of Ourtown*". The example lays out the principles, scope, aims and methods of a business in 34 words.

Describe the business in as much detail as possible, including the market you are operating in, the competitive environment, your location, legal form of business (sole trader, partnership, limited liability company, co-operative and so on), personnel (roles and responsibilities), suppliers, equipment and other assets. You may include an outline of your marketing strategy, but this may be better suited to a separate document. You should include details of your proposed strategy for business development; for example, "In year two we shall begin cultivation of a further 500 square metres of growing area which will produce a crop in year three. In year three we shall develop a further 100 square metres of floor space in the shop including one extra checkout." Also include an analysis of market trends (for example, reliable projections of the demand for local foods).

Provide financial projections for your first three years making explicit assumptions about growth rates, inflation and interest payments. The projections should include details of your estimated annual income and expenditure, including proposed development costs and asset values. If possible, you should also analyse monthly cash flows, including bank balances and sources of funding. Base your figures on actual data and realistic predictions. You may wish to include optimistic and pessimistic scenarios.

Regularly review and revise your plan. If you are not fulfilling your mission statement, or your financial projections do not match your actual performance, you will either need to change the plan or change the way you are working.

Marketing strategy

You should document the marketing strategy for your business. Marketing is usually a matter of commonsense, but you may benefit from discussion with people you trust and people with relevant experience.

Marketing strategies follow from an analysis of your market. For example, you might decide to advertise your product in specific publications such as local newspapers or community newsletters because you know these are read by the kind of people you wish to buy your product. Gathered together, these strategies form a marketing plan.

In general, the plan should cover the following areas:

- **The identification and size of your chosen market (typically defined by one or more characteristics such as age, education, occupation, income, place of residence, interests and cultural concerns)**
- **Your marketing goals (see below) and the steps you will take to achieve them**
- **Your competitors, the range of selling prices in the market and your strategy on pricing (high for luxury goods and to maximise margins/low for day-to-day goods and to maximise sales volume)**
- **Roots to market – where and in what form you will sell your produce**

Marketing goals

Your marketing goals should be SMARTER. This is a term with no universally agreed meaning, but for our purposes the components are:

- **Specific – your goals should be clear and well-defined, for example, to achieve a profit on sales of £10,000**
- **Measurable – you should be able to track progress towards the goals, for example, you should be able to calculate whether you are earning the required profit**
- **Agreed – the goals should be open and accepted by everyone in the business – it would be counter productive if different people were working towards different goals**
- **Realistic – the goals should be achievable within the limits of your resources and ability – don't set yourselves an impossible task**
- **Time-bound – the goals should not be open-ended but should be subject to a realistic deadline, for example, you should seek to achieve the £10,000 profit by the end of the financial year**
- **Ethical – the goals should contribute to the public good and should not involve exploitation of any kind**
- **Relevant – the goals should be appropriate to your organisation's mission and not a diversion from your aims**

Test marketing

Test marketing gives an indication of whether the marketing goals for your produce are achievable with your current resources. It also helps you develop or refine your marketing strategy.

One cost-effective way to market test is to approach farmers' markets or local festivals. The reception for your produce will give you an idea of its likely popularity. If you sell the produce yourself, you can find out customers' views and what encourages them to buy. You will also be exposed to competitors and can research prices, packaging and other elements of the marketing mix.

Marketing tools and brand awareness

Customer service

The most valuable marketing tool is often word of mouth. If customers enjoy your product and enjoy buying it, they will come back and may even recommend the product to others. This is partly a matter of the characteristics of the product itself – its quality, taste and freshness, for example – but also of packaging, presentation and the buying experience. If you are selling online, for example, make sure your website is well designed and easy-to-use. In a shop or market stall, cultivate helpfulness and sincerity. Try to create a welcoming atmosphere. Customer service is critical.

Brand awareness

Food retailers are divided about the value of advertising, but food brands, on the other hand, depend on it. You should try to create brand awareness and brand value. This could involve simple advertising, newsletters and leaflets. Or you might consider supplying a range of branded 'extras' – jute bags bearing the business name and logo, or free recipes that use your produce, whether it is fruit, vegetables, herbs, dairy produce, meat or – uncommonly – fish. You'll see the bags in a number of shops, while recipes are quite common with box and bag schemes. Look around for what other businesses do to get their brands noticed, and learn from them.

Culture foods

If you are producing so-called "*culture foods*" – coriander, lemon grass, sweet potato – you should have ready markets among the communities who use them. Community centres may be a good place to advertise your produce.

But the main advice is to build a relationship with your customers – whoever they are. Encourage your customers to comment on your produce and/or service. Occasional customer surveys can help. If you sell direct, a comment book or a 'guestbook' on your website may provide useful insights. Always listen to your customers and welcome their comments graciously.

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Module 4

PROJECT MANAGEMENT

Introduction

You will probably not consider yourself to be a project manager, or consider your group to need some with that title or job description, even if you and your group are aware that the group's activities do constitute 'a project'. As M.E.Mullaly wrote in a 2003 article entitled *The Accidental Project Manager: Coming in from the Cold*:

> *"Many of you may already be 'accidental project managers' who carry out many of the activities outlined here but view it as simply 'getting things done' whilst recognising that you also rely heavily on luck, perseverance and strength of will."*

Project management, in other words, is a fancy name for 'getting things done'. But it is more than *just* getting things done – it is getting them done more efficiently, more effectively and at lower cost.

Growing food, and distributing or selling it, are projects in the generally recognised sense that they are activities meeting specified goals undertaken by an individual or a group involving coordination and defined beginning and end points.

Of course, to outward appearances, a community-based group may not resemble a conventional business or a high-powered academic team with, say, European Union funds to play with. Yet, the principles of 'getting things done' will be the same whatever the size or cost of a project.

Your group may not have the capacity or expertise to make sure its project is delivered successfully. This module is designed to fill the gaps and introduce the basics of managing your work and your resources through to its conclusion. It is not meant to be a comprehensive treatment of the topic, nor will make you a qualified project management professional, but it should certainly give you an insight into the weak points in your project and how you might deal with them.

In this module

This module covers the basics of project management and looks at everything you will need to know in order to organise your work and manage your resources to accomplish your immediate goals. The module looks at some basic issues in project management including:

- **Financial control**
- **Inputs and outputs**
- **Time management, scheduling and workflow**
- **Social value**
- **Using IT**

Exercises

1. **Discuss the different tools you might use to help you manage your project, what their value might be, and how you might use them. Look at the following:**
   - **Spreadsheet**
   - **Gantt chart**
   - **Email/Mailing list**
   - **Newsletter**
   - **Website**
   - **Mobile phones**
2. **Draw up a Gantt chart for your project, identifying discrete activities, timescales, overlaps and deadlines.**

Expected Learning Outcomes

- **An understanding of the need for planning, evaluation and review**
- **An understanding of how to draw up and use a basic Gantt chart**
- **An awareness of the potential of IT-based ools**
- **An understanding of how implicit goals might contribute to social value**

Resources

- **Joint Information Systems Committee (JISC) – A comprehensive guide to project management from the organisation responsible for the UK universities' IT and Communications infrastructure: http://www.jiscinfonet.ac.uk/infokits/project-management**
- **Funder Finder – a comprehensive list of all sources of funding in the UK: http://www.funderfinder.org.uk/funding.php**
- **Gantt Charts for Everyone – Excellent web-based introduction to the Gantt chart, probably the single most useful tool for small to medium scale project management: http://www.gantt-chart.biz/gantt-charting-made-easy/**
- **Software for project management – GanttProject is an open source (ie. free) project management tool, running on Windows, MacOS and Linux, which facilitates project scheduling and project management. It allows you to create Gantt charts and PERT charts and manage "human resources" (people). It works with Microsoft software and formats and will export charts as PDFs, PNG images or HTML reports. http://www.ganttproject.biz/download**
- **Open Office – You should be able to use simpler office software than GanttProject for most small projects. Open Office is a free, multiplatform office suite including a fully-featured word processor and spreadsheet which will allow you to import and export Microsoft Office files: http://www.openoffice.org/**

Notes

The best place to start any discussion of the importance of project management is to ask yourself why projects fail in general and how your particular project might fail. In that way, you should be able to address the critical issues.

Why projects fail

The JISC guide (see 'Resources') sets out the following list of common reasons for project failure:

- **Poor project specification**
- **Unrealistic timescales**
- **Timescales that are too long**
- **Inappropriate staff**
- **Insufficient involvement by senior management**
- **Failure to manage user expectations**
- **Failure to manage the change required**

From the point of view of a group-based urban agriculture project which is likely to be less formal and less hierarchical, and to depend on more volunteer labour, than a conventional project, this list could be rewritten:

- **Poor project specification**
- **Unrealistic timescales**
- **Timescales that are too long**
- ***Not enough committed group members***
- ***Inadequate leadership or decision-making procedures***
- ***Failure to understand project risks***
- **Failure to manage the change required**

Not a huge difference, but it does indicate how your group's undertaking differs from a corporate or academic project and it identifies three critical elements of a group-based project.

First, group members are not staff and should not be treated in that way. They are equal partners in the project and that means they need to be party to determining its goals and its management.

That doesn't mean there should be no leadership or firm decision-making procedures (as in the next failure point); it does mean that leadership and decision-making must be democratic in a way that doesn't necessarily characterize other projects.

Finally, a group project should have no need to manage user expectations, since the group members are the users. But the point remains that a project needs to know how to handle the possibility of failure – managing expectations is the way most conventional projects might do it; being clear about risk and communicating it is the way a group project should do it.

Running your project

Set project time scale

A project must have an explicit beginning and end date. This helps to distinguish it from ordinary activities or ongoing tasks. Assuming your group has agreed what the project is to be – say, preparing and planting a certain piece of land – you should decide when you intend to start and what your target completion date is. You may combine projects, of course, so that after preparing the land, for example, a second project devoted to growing the produce begins. This one might be deemed to end when cropping is complete – on a date which would, in practice, have to be considered a target.

Create a steering group

Once you have agreed the beginning and end dates of the project, you should create a project steering group. This could include everyone engaged in the project, assuming there are not too many of them. A steering group should not include more than around half-a-dozen people as a rough estimate. Any more than that and the discussions may become unmanageable. Any fewer and you risk taking too narrow a view. In any case, you must ensure that the steering group meetings are open to everyone working on the project and that everyone is engaged in choosing steering group members.

Keep it democratic

It is vital to keep your project democratic and to cultivate a sense of ownership among all the group members. Projects are inherently political, since it is likely that everyone involved will have their own ideas as to what is important. Project managers have to manage these politics and prevent them from obstructing the project. The key is to routinely consulting with members of the group, involving them in the decision-making, and keeping them all informed as to what's going on through emails, regular meetings and even a newsletter if there are enough people to warrant it. It is worth building social events into the group's activities. It all helps to create an esprit de corps.

Budget, funding and financial structure

Perhaps the first thing the steering group should do is to agree the overall budget for the project. This will depend on exactly what you plan to do, when you plan to do it by and how much money you are able to raise. All this ought to be known before you begin the project, and you should cut your cloth to suit your collective pocket.

Funding sources may include loans, grants, donations and the group's own money.

Your funding decisions will help determine (or be determined by) the organisational structure you agree on: the commonest options will be informal partnership, limited liability partnership, limited liability company, community interest company or co-operative. Each of these carries different duties, benefits and risks, and your choice will be influenced by a number of factors including the size of the project, the total amount of money involved, the source or sources of funding, and the capacity of the group to manage bureaucratic tasks like preparing accounts.

In practice, a small project will be likely to remain an informal partnership – particularly if you all know each other as friends – while a bigger project should probably opt for co-operative status which will limit your liability in case of debt, allow people to be recruited to the group and prevent individuals from gaining undue influence by accruing shares.

Before making your final decision on a financial structure, you should seek advice from an expert – a friendly accountant, a business adviser, or the Making Local Food Work project which has published useful information on this topic.

Priorities and contingencies

Once your total budget is known, you should be able to break the project down into discrete activities or 'work packages' and assign workers and a budget to each of these. Typical activities or work packages could include ground clearance, propagating seedlings, fencing, digging and preparing soil, planting seedlings, watering and feeding, weeding, and cropping. Remember that meetings, leafleting and running a website are also activities.

Some activities are dependent on others having been accomplished, while some can be done independently. For example, propagating seedlings can take place at the same time as you are clearing the ground, but planting the seedlings requires the ground to have been prepared already. Some activities overlap – for example, you might choose to divide the ground into two or more areas, so that one is being planted while another is still being cleared.

You should assign a priority to each activity – for example, propagation and planting have the highest priority, while fencing has a relatively low priority. Watering may have a high priority but will depend on external factors like rainfall.

Prioritising will help you assign numbers of workers to a task. This should take account of the time allocated to an activity and whether other activities depend on its completion. This is relevant to the budget you calculate for each activity.

You should cost each activity in terms of materials and labour. Materials are likely to be relatively cheap – seeds, propagation pots, compost/fertilizer, for example – and some can be scavenged or put together with wood and binding twine (fencing, for example). You should include costs associated with running the project – stationery, postage, website, communications, meeting room, refreshments. Don't include costs that are not specifically related to the project – you may include the cost of petrol for a van, for example, but unless the van is exclusively used by the project it is best not to include it.

Your most significant cost is likely to be labour. Even though group members may not actually receive payment, it is important to quantify the value of labour. This might be based on average wages for this sort of work and will help you determine prices when it comes to selling your produce. It will also help you develop credible funding applications and business plans. Costs (even notional ones) are also important when it comes to determining contingencies.

You may need to decide what action to take in case certain unforeseen events occur. For example, a hard frost may kill half your seedlings or ten per cent of your work force may be laid off because of a flu epidemic. In these cases, you will have to adjust your plans and decide whether and what action to take – try to raise more money, reduce or revise your goals, allow more time for certain activities, move workers between tasks, or try to bring in more people to the project.

Your choices will be determined in part by the priorities you have assigned, but also by the dependencies between activities. For example, you may be able to delay work on the fencing because it is a relatively low priority and because no other activity depends on its completion. By the same token, should you need more labour to focus on a particular high priority activity like planting, you may be able to release people from lower priority activities like fencing.

Gantt charts

If your project is large, managing all this information can acquire an intimidating complexity. The best way to get your head round all the components and dynamics of a project is visually, and probably the single best tool for this purpose is the Gantt chart. Gantt charts were developed in the 1910s by Henry Laurence Gantt, an American management consultant and engineer, who saw the need for a method of visualising the complex interaction of tasks that characterizes large construction and engineering projects.

Since Gantt's day, a variety of similar tools has joined the armoury of project managers, including Critical Path diagrams and PERT charts (it stands for Programme Evaluation and Review Technique), but the Gantt chart remains probably the most versatile of these, capable of being implemented to any required degree of complexity. For a relatively simple project, such as a community urban agriculture scheme, Gantt charts can be created in a few minutes but still offer a powerful way of representing the sometimes complicated interaction of activities and resources.

Fig 11 shows a section of an elaborate Gantt chart, created using proprietary project management software, which can extend over many rows and columns. Fig 12, on the other hand, shows a simple chart which can be drawn up on a small Excel or Open Office spreadsheet, or even as a table in a word processing document.

The simplified chart in Fig 12 divides the project into seven activities (often described as 'tasks' in project management speak) and the year over which the project will run into 12 months. This is certainly over-simplified, but can still be extremely useful. For example, it allows you to schedule meetings at what will be the most useful times in order to review key activities, and it allows you to plan the deployment of resources throughout the year.

In May, your group will be able to discuss seed propagation and ongoing planting, take an early look at how plant maintenance is progressing – whether you are coping with the tasks of watering, feeding and pruning well enough – and plan the forthcoming harvest (in particular, allocating labour according to availability – it should be clear from the chart that more people should be available at the beginning of the harvest). You can see from the chart that your seed propagators must be available in February.

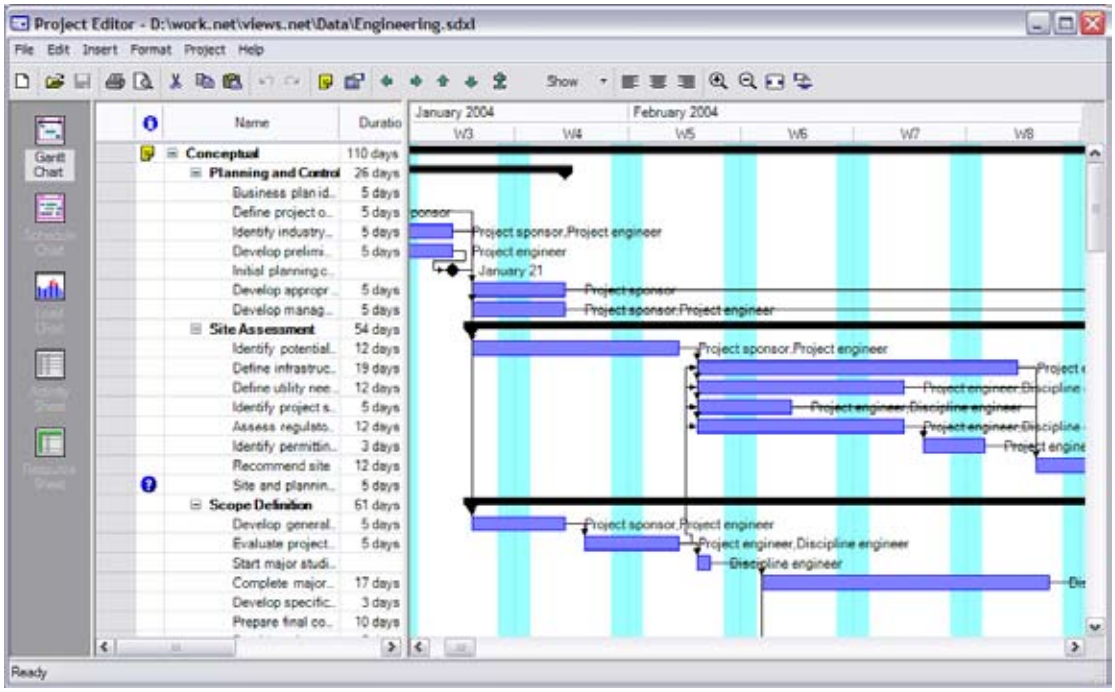

Fig 11 Part of a complex Gantt chart from http://www.gantt-chart.biz/gantt-charting-made-easy/

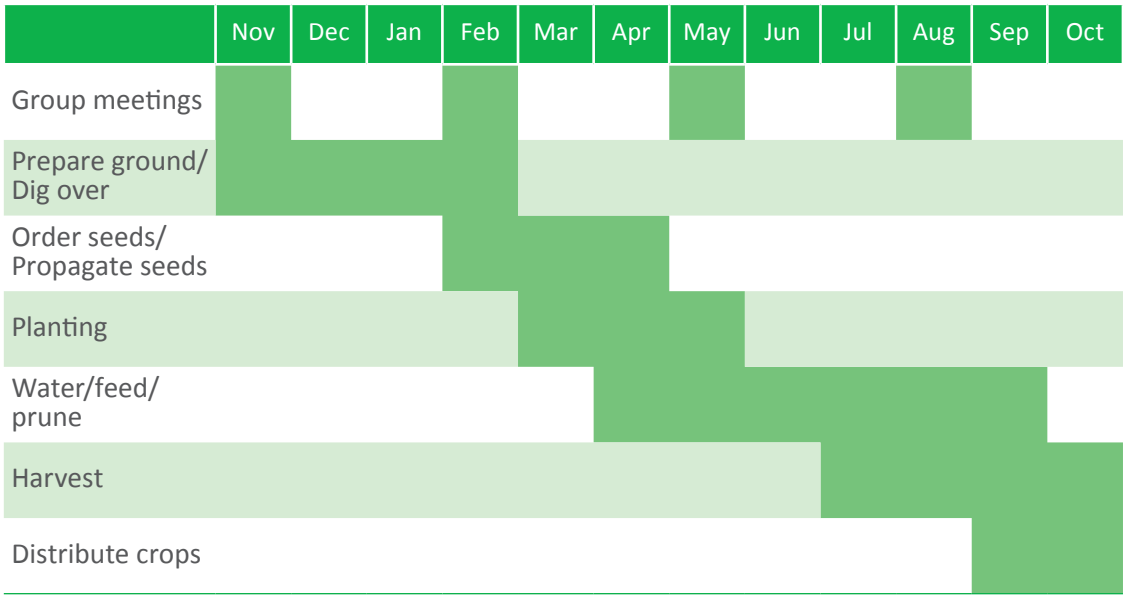

Fig 12 Simplified Gantt chart for a year long growing project

A Gantt chart is just a table with rows and columns – one row for one activity and each column representing a date or period. To make the chart more elaborate, you can choose finer grained date columns representing weeks or days, say, rather than months.

You can also break down activities into independent sub-activities. For example, preparing the ground could be broken down into a series of activities involving clearing rubbish, weeding, raking, and digging and filling trenches. These subsidiary activities could be shown on the same table or on a table of their own. And for each activity you should identify deliverables and the people responsible for delivery (organisers and workers). Deliverables are tangible and measurable outputs – the area of ground you prepare and plant, the seedlings you plant, the produce that you distribute, the report you produce for funders.

Once the project has begun, you can draw a line through each activity (or use shading) to show what proportion of the work has been completed. On any given date, you can draw an actual or imaginary vertical line – the snapshot line – through all the activity rows and read off which activities have been completed, which are behind schedule, which ahead of schedule and which tasks are yet to start.

You may also indicate key dates – sometimes called milestones – which represent major accomplishments, such as completing ground preparation or starting the harvest. Finally, you might want to add useful information to each activity – for example, the initials of the people responsible for organising or undertaking the activity.

Completing the project

A project is completed when all the milestones have been achieved and the deliverables you have identified have been, well, delivered. During the project, you will have to negotiate crises and slippage. Someone will need to constantly chase progress. The project manager may be able to divert resources to help meet critical milestones, or the group might consider revising its timetable and modifying the chart. Nothing should be considered sacrosanct – not even the project goals, which may need adjusting to meet the circumstances. But be careful. Don't change your plans on a whim or because you meet temporary problems. Change your plans when it is impossible to do otherwise if the project is to survive.

The most important thing is for the group to work together – to agree a plan and to work to the same ends. Projects often encourage secrecy, particularly where labour has to be divided and activities separated. This is potentially disastrous. Each member of the group should strive to be open and honest and the group as a whole should encourage discussion and sharing. It may be necessary to delegate jobs and it may be necessary to provide leadership, but this should not override inclusiveness, self-confidence and the co-operative ethic.

Diversity

In any project, it is important to embrace diversity. In practice, that means that you may need to attend to minority interests and cultural restraints. This may look like it would hinder the group's progress, but in fact diversity is likely to stimulate creative approaches to problems. In the longer term, it will enable your group to build up alliances with other, similarly placed groups.

It is part of the project manager's job to encourage and facilitate working together, even when that involves recognising different needs, abilities and beliefs. The project can become a focus for mutual support and solidarity which itself will help you build partnerships and networks within the community around you and among your suppliers and customers.

Evaluation

The final point is to evaluate the project once it is completed. In this way you can identify weak points, points of failure, and strong points where you have succeeded and succeeded well. Of course, once the project is over this might seem pointless. But remember, an urban agriculture scheme is meant to continue each year. Evaluating your projects can make sure that happens.

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Module 5

PROCESSING FOOD

Introduction

Processing food typically comes at the very end of the food supply chain; it involves preservation (through heating, drying, salting, sweetening, pickling, fermenting, chilling or freezing) or cooking. Sometimes, as in cook-chill preparation, the two forms of processing are combined.

Food processing is usually designed to fulfil one of three goals:

1. **To enhance nutritional or health value.**

   Typical examples include the addition of vitamins to milk and bread, pasteurisation, and the cooking of kidney beans or meat to remove toxins and pathogens such as Salmonella.

2. **To improve taste and eatability.**

   Cooking breaks down tough fibre and tissue making foods easier to chew and digest, while salt, sugar, herbs and spices add flavour and piquancy to often monotonous ingredients.

3. **To increase longevity or 'shelf-life'.**

   Raw food goes rotten very quickly – particularly without refrigeration. The earliest forms of processing – salting, drying and fermentation – allowed food to be preserved for consumption when no fresh produce was available. Pickles and salted fish are mainstays of diets in northerly countries, while dried and frozen vegetables and processed cereals can be transported over long distances and stored for months without degradation. In recent years, these traditional means of preservation have been joined by the controversial high tech technique of food irradiation.

Today there is a new fourth goal: **to add value to raw produce**. In extreme cases, such as the production of gourmet restaurant meals, this can involve great expertise and significant resources. In others, for example, the creation of fine wines, substantial amounts of time and very careful and controlled storage may be necessary.

But adding value can be relatively simple – for example, washing, bagging and labelling fresh salad is a routine process which can increase the price per kilogram that the produce can fetch by 100 percent or more.

Turning a salad into a meal or using fresh leaves in sandwiches can add even more to the perceived value and comparative price of the produce.

Some food items can be pickled or dried, bottled or boxed, and labelled and sold for an even greater comparative price – think tomato chutney, sun dried tomatoes, raisins or dried apple slices. What makes the difference? The packaging is one element, but more important will be labour, capital costs (specialist machinery, for example) and storage.

In all cases where food is processed, certain issues must be considered. These help to explain how prices are determined, because they usually involve extra cost. It is important to realise that each cost item can also attract an element of profit. So if you need to spend money on ensuring that the food you serve in a restaurant or café is hygienic, you will probably add this amount plus a little extra to the price of the food when you sell it.

This raises some important points.

There are legal requirements – particularly with regard to food hygiene and safety – surrounding the processing of food for sale under any circumstances. These may be a significant burden in terms of cost and time. You are likely to be required to undertake a short training course in Food Hygiene and Safety if you intend to operate in catering, food retailing or food manufacture (assembly, processing, packing and storage). Online courses are available for as little as £30 including VAT. You should also bear in mind that you are likely to need professional indemnity and public liability insurance to protect you from legal actions in case things go wrong. This may cost anything from around £100 to around £300, depending on the level of protection and the broker you use.

You may well incur overheads and wage costs (so-called 'fixed costs') which need to be spread among the items you sell – bags of salad, bottles of pickle, meals, or sandwiches. If you underestimate your sales, you may be unable to meet these fixed costs. Excessive fixed costs are probably the commonest cause of business failure and insolvency.

Finally, the supply of prepared food requires a good understanding of people's tastes and expectations – when consumers welcome variety and when they value consistency; how to cultivate familiarity and when to introduce novelty; the importance of quality and what its signifiers are (for example, organic certification, appropriately designed packaging, and guarantees of origin, standards of production and traceability).

There is a huge range of foods and food types available to anyone who wishes to manufacture and supply processed dishes and meals. Sandwiches are the most popular type of snack food in the UK, and sandwich shops and delivery services are probably the most popular kind of food outlet in the country – particularly for new entrants into food businesses.

But the best advice is to start with something you know – for example, take one or more recipes you are familiar with and, for a commercial operation, scale up production (see the short section on fast food below). It is always good advice to try out your product or products – breads, pickles, juices, snacks, takeaway food, sandwiches, or restaurant meals – on yourself and friends or family. Only supply products that you have good reason to believe will be popular or meet a demand.

Find a market, learn about it, and sell to it. For example, think of catering to local cultural minorities or supplying sandwiches, to take one example, for lunch to office workers. Make sure that the food tastes good and that you products are consistent (that is, standardise ingredients, portion size and packaging). Monitor and analyse your sales, continually improve your procedures and quality, innovate wherever possible and appropriate, and – above all – actively promote what you supply, through advertising, leaflets, the internet and eye-catching presentation.

In this module

This module covers the preparation of food for sale in portions for immediate consumption (in restaurants, cafés, takeaways and stalls) or packaged for later consumption (in homes or commercial outlets). It is relevant to organisations intending to supply food to lunch clubs, schools, hospitals or other institutions. Among the issues covered are:

- **Legislation**
- **Hygiene and food safety**
- **Training**
- **Food processing, packaging and fast food**
- **Business strategy and planning**

Exercises

1. **Investigate and estimate the costs of producing:**
   - **A kilogram of apples**
   - **A litre of apple juice**
   - **A single lettuce**
   - **A bag of washed lettuce**
2. **How would you price each of these items?**
3. **Estimate the price of the ingredients for a single cheese and tomato sandwich and then look at the price of such sandwiches – where does the difference come from? How might you minimize the price of the sandwich and how might you go about increasing the price customers were willing to pay for it?**
4. **You propose setting up a hot food stall just off the main road of a culturally diverse part of town. Within the immediate area there are 20 shops employing 50 people, including 2 day-time snack and coffee bars, and several offices employing about 100 people. There are two pubs, one of which sells food all day. Discuss the following questions:**
   - **What will you sell?**
   - **How should you equip the stall?**
   - **What legal requirements would you need to meet?**
   - **What will your fixed costs be?**
   - **How would you promote the stall?**
   - **What hours would you work?**

Expected Learning Outcomes

- An understanding of the options for selling prepared food and the range of possibilities for adding value to food by processing it in various ways
- Awareness of the legal requirements regarding training, hygiene and safety when handling and preparing food
- An understanding of the importance of packaging, storage and labour and the costs they represent in processing food
- Awareness of the basics of business strategy and planning particular in relation to meeting the demands and expectations of consumers and community

Resources

- EU Regulations on food hygiene.
  http://www.food.gov.uk/multimedia/pdfs/hiojregulation.pdf
- UK Food Standards Agency. Hygiene Regulations.
  http://www.food.gov.uk/foodindustry/regulation/hygleg/hygleginfo/foodhygknow/
- UK Food Standards Agency. Guidance to Caterers.
  http://www.food.gov.uk/foodindustry/caterers/
- UK Food Standards Agency. Latest guidance notes (September 2010).
  http://www.food.gov.uk/multimedia/pdfs/fsapublishedguidancesept10.pdf
- High Speed Training (online courses in Food Safety and Hygiene).
  http://www.food-certificate.co.uk/
- Virtual College (online courses in Food Hygiene).
  http://www.food-hygiene-certificate.co.uk/

- **Recipes4us**. There are plenty of recipe websites available where you can find inspiration. This is a good one to start with. It includes pickles, jams and preserves, as well as soups, breads, cakes, biscuits and conventional dishes. A special section on preserving fresh food includes instructions for freezing, bottling and drying, and there are individual sections on recipes from different parts of the world from Argentina to the West Indies. The site also includes historical notes and useful sections on growing herbs and vegetable, kitchen equipment, and food and health. It also includes directories of cookery classes, kitchenware retailers, UK farmers' markets and online food suppliers.
  http://www.recipes4us.co.uk/
- **cookalmostanything.** An Australian blog with a range of interesting recipes (including cupcakes).
  http://index.cookalmostanything.com/
- **BBC Food website** – among the most interesting of all UK recipe sites.
  http://www.bbc.co.uk/food/
- **pickleandpreserve.** A UK-based site including recipes for pickling, freezing, drying and other means of preserving a range of foods. It includes most traditional preserves as well as cordials, preserved lemons, damson gin and crystallized ginger.
  http://www.pickleandpreserve.co.uk/
- **sandwichnews.** A website for independent sandwich shop owners in the UK. Lots of good advice for startups.http://www.sandwichnews.com/
- **The British Sandwich Association** website.
  http://www.sandwich.co.uk/
- **Pizza, Pasta and Italian Food Association** website.
  http://www.papa.org.uk/
- **The UK Food Bloggers Association** is a site for all food bloggers in the UK and includes some useful information for foodies, cooks and anyone with an interest preparing food or writing about it. A good place to find out about the leading edge of British food.
  http://www.ukfba.co.uk

- **The Women's Institute. The WI website is a resource for the institute's membership of more than 200,000, but includes a useful section on food, covering recipes, healthy eating, food safety and hygiene and the FSA funded 'Let's Cook!' project aimed at teaching young parents in England and Wales how to prepare healthy meals on a limited budget. http://www.thewi.org.uk/**

Notes

Food Hygiene Legislation

From 1 January 2006, new EU food hygiene legislation has applied throughout the UK.

1 **Who has to comply with the regulations?**

Any organisation – private, public or third sector – carrying out any stage in the production, processing and distribution of food to the public, whether that organisation is profit-making or not-for-profit.

2 **What does the law say?**

Most food businesses will need to register all their premises (whether they are permanent or temporary) with their local authority's environmental health service at least 28 days before opening. This is free. The Environmental Health Officer is likely to want to visit your premises at some point. You should also discuss your plans with the local Trading Standards Office (which may be based at County level). This is relevant to product labelling, description, weights and unit sizes.

Certain types of business need to submit their premises to a more rigorous local authority approval procedure. They include those producing or processing the following foods:

- **meat and meat products**
- **eggs**
- **milk and dairy products**
- **fish and fish products**

EC Regulations further state that all food handlers must be instructed and/or trained in food hygiene matters commensurate with their work activity. To comply with the law a food business needs to demonstrate that all its food handlers have an appropriate level of knowledge of food hygiene. Businesses are audited by an Environmental Health Officer who will examine certificates awarded to trainees who have completed an appropriate and approved course in food hygiene.

Food businesses must also be able to prove that they produce food safely. This can be done by demonstrating that the business complies with HACCP principles. HACCP stands for 'Hazard Analysis Critical Control Point'. It is the internationally recommended system of food safety management focusing on the 'critical points' in a process where 'hazards' could arise in order to take steps to prevent this happening. Record-keeping is an important part of HACCP.

There are numerous other rules which may be relevant to a particular business. They are often complex – for example, there are many regulations covering food labelling, including nutritional information and the declaration of additives, food colours and other ingredients, but there is only "best practice guidance" on the use of terms like 'vegetarian' and 'vegan' on labels.

There are also specific regulations for different activities such as catering and restaurant operation. Meanwhile, the regulations seem to change with alarming frequency and areas of responsibility are often shifted between government departments. In short, it is important to seek advice from the Food Standards Agency and the relevant local authority environmental health service.

Common causes of food contamination

- **Improper or no hand washing**
- **Chemical or bacterial toxins**
- **Improper cooling**
- **Inadequate hot holding and improper reheating of leftovers**
- **Inadequate cooking times or temperatures**
- **Ingestion of raw contaminated foods**
- **Employees who are ill working in food preparation**
- **Improper cleaning and sanitization of equipment**
- **Improper thawing of frozen foods**
- **Multistage food preparation with long time lapses between stages**
- **Employees who practice poor personal hygiene**
- **Cross contamination**
- **Food products from unsafe sources**

Training

Many colleges offer courses in food preparation, hygiene and safety. For hygiene and safety, you should look for accreditation at Level 2 by a recognised agency such as City & Guilds (C&G) or the Chartered Institute of Environmental Health (CIEH). There are online courses available priced at £30 inclusive of VAT, while colleges may charge between £50 and £100.

The courses last around 6 hours in a classroom, or about 3 hours online. Food preparation courses qualifying students to work at different levels from 'food service operative' (Level 1) through chef (Levels 2 and 3) to supervisor (Level 3) may run over a year part time and cost hundreds of pounds.

Food processing equipment

For the commercial preparation of jams, preserves and pickles, you will need several items of equipment, together with sealable, air-tight jars (such as Kilner jars) or other containers which will protect the processed food against airborne contamination.

1. pH Meter

Used to check the acidity of a product.

2. Steam Kettle

Used for heating and cooking; works on the same principle as a double boiler. Stainless steel is essential for food processing and must be of superior quality to handle acidic foods.

3. Jam/Preserving Pan

A large pan for boiling and reducing jams and preserves; stainless steel, often used with a stainless steel funnel.

4. Thermometer

Using a thermometer is the only reliable way to ensure safety and to determine the actual temperature of most foods.

Fast food

Fast-food is based on a principle of mass production pioneered by Henry Ford in his Detroit car plant.

The origins of the modern fast-food revolution date back to the late 1940s when McDonald's adopted its 'Speedee Service System' which created a production-line for hamburgers and fries. The preparation process is broken down into simple, easily repeatable stages which require little or no skill on the part of the cook.

The basic cooking processes are also simplified – griddles and grills are designed to allow one person to prepare several meals simultaneously. In fast-food outlets, you may also see large stainless-steel deep-fat fryers to make chips (or french fries) and other fried food, and a 'dressing station' where condiments and salads are added. Today, this kind of arrangement exists in outlets selling burgers, fried chicken, fish and chips, tacos, Chinese food, bacon butties and kebabs. The common characteristics of all these outlets are a limited menu and a consistent product.

Most fast-food is high in fat (typically so-called 'trans fats' or partially hydrogenated oils), salt and sugar. These work as preservatives and flavour enhancers, although they are invariably incorporated at unhealthily high levels. But fast-food production has been adapted to healthier cuisines, so that you can increasingly find outlets preparing, for example, falafel, paella, filled Staffordshire oatcakes or Tibetan food using similar principles to the ones introduced by McDonald's.

Tutor notes

0 INTRODUCTION

The background notes, like all module notes, should be distributed to learners to read in their own time. In the case of this introductory module, the notes form the basis of an introductory tutor-led session which will help learners and tutor get to know each other.

During group discussion it is worth noting how learners understand urban agriculture and what they think distinguishes it from other forms of agriculture and horticulture. These ideas can be fed into later modules.

Each module has one or more optional exercises. This are not mandatory, but might be used to help the group get to grips with particularly important elements of the course.

Each session should last 2.5 hours with one break.

Module 2 – **Food plant production** – will require two sessions.

If possible, schedule extra-mural site visits into the course.

If possible, invite guest speakers with specialist knowledge to talk to the group – this might best be done outside regular sessions.

The course is not accredited, but we seek nationally recognised accreditation within the NVQ / SNVQ framework

We encourage groups to evaluate the course and welcome feedback from tutors:

Contact Urbanag by e-mail at **sprouts@urbanag.org.uk**

1 LAND ON YOUR DOORSTEP – SPACE IN THE URBAN ENVIRONMENT

The issues of land access, ownership and development are complex. A great deal of time could be spent on just one single aspect. It would be unrealistic for a tutor to know the subject well and it might be useful if to have a friendly planner or consultant to talk to students.

This module should focus on three things:

- **Encouraging learners to look and think critically about their own environments**
- **Introducing learners to the agencies that can help (or hinder) their initiatives**
- **Teaching learners there is a great deal of variation between areas as to the type and quality of agency and local authority support they might receive**

This module does not touch upon how groups acquire funds to buy land. This can and does happen but is not generally the approach taken by community groups.

2 FOOD PLANT PRODUCTION

Tutors cannot be expected to demonstrate expertise in all approaches to and forms of plant cultivation. The tutor's role is to introduce the student to the subject in such a way as to encourage the spirit of enquiry and help them to explore the topics with enthusiasm and patience.

3 MARKETS AND OUTLETS

This module is aimed at groups who grow food and who wish to distribute it to others. Most of the content assumes that the groups will be selling produce either directly to the public or to other, probably like-minded, food enterprises. It does not cover straightforward commercial businesses to any significant extent, although some parts of the module might be relevant to them.

This is a big topic and the options for groups are numerous. Learners should be encouraged to use the module to help shape their ambitions and make the most of group discussion and guided research.

In practice, learners should be encouraged to seek the advice of professional experts – banks, accountants, lawyers, surveyors/architects – and experienced food activists associated with organisations like Sustain and Making Local Food Work. We at Urbanag will be happy to advise where we can.

4 PROJECT MANAGEMENT

This module is fairly abstract and it is advisable to try and make the subject concrete by concentrating on a real, planned or imagined project.

Get the group to analyse the project and break it down into separate activities. They should make a realistic assessment of their capacity, the resources they may have access to, and timescales for their chosen project. They should discuss their priorities and break the project down into different finite activities, provisionally allocating resources (people, time, materials) to each of them.

They can then collectively produce a Gantt chart for the project, incorporating everything they've discussed and setting start and end times for each activity.

You might throw some problems at them – no rain, too much rain, sickness in the group at critical times – and see how they would cope with them.

5 PROCESSING FOOD

This module is about food processing rather than selling, although it's impossible to completely disentangle the two, if only because in any single case the kind of food processing of interest to the learner will depend on the kind of selling they are interested in (and vice versa). So get that out of the way, and try to focus on the commonalities.

In all cases, learners will need to consider the processes and/or recipes they will use, and this comes down to the market they intend to address and their own preferences and experience. Typical – and popular – forms of processing include sandwich making (sandwich shops are probably one of the most popular of all small business start-ups and it might be worth discussing the reasons for this), baking (breads and speciality cakes, such as cupcakes, are popular), pickling/bottling (chutneys and sauces), juices, restaurant meals or snacks and tapas, brewing and wine or cider-making, and various forms of fast-food. But there are also simpler kinds of processing such as washing and bagging salads, fruit and vegetables which require less skill and a lower outlay on equipment and materials. The tutor should make it clear that some forms of processing require great dedication, expertise and investment, while others may be accessible to everyone.

Anyone undertaking any form of food processing for eventual distribution or supply to the public will need to meet certain legal and practical requirements. Tutors should spend a significant amount of time on these, because they are important and pretty much universal. They cover hygiene and safety, various forms of insurance, the sourcing of ingredients, process control and standardization, labelling and product/portion sizing. It may be worth talking about business planning, record keeping and managing accounts during this discussion if there appears to be a demand to cover these areas.

It is worth stressing the importance of marketing and promotion – leaflets to put on market stalls, well designed and eye-catching packaging, mailing lists to keep in touch with customers, websites and social networking tools for creating 'communities' and – possibly – selling online. There are many existing online communities which people may want to join for help, advice and information, and also to keep in touch with tastes and the way demand changes and develops.