

## **Virtual Organic Garden**

### **INTRODUCTION**

During the next few months a group of students are going to learn how to convert a small overgrown plot of land into a productive organic garden.

Each week, on this website, we'll publish the weekly information sheet that the students receive to help them with their work. We'll also publish pictures of the successes and failures that will inevitably happen as the student's work in the garden progresses. Perhaps you'll use some of this information to help you develop your own organic garden.

At the beginning of July the students will harvest some of their crops. They'll also be tested on what they've learned during the course. The examination they take will also be published on this website. Why don't you follow the progress of this virtual organic garden and try the examination too?

### **Where is this Organic Garden?**

The garden is being developed at Ynys Las, in the beautiful Dyfi Valley, on the fringes of Southern Snowdonia in West Wales. To the West of the garden, less than half a mile away, is the sea. The plot is protected from North winds by an aging brick wall. To the East and South is a large area of ecologically important low wetland called Cors Fochno. This area, plus the Dyfi Estuary to the North are important natural habitats to a wide variety of species.

If you have to learn about gardening what better place is there than on the edge of a nature reserve, surrounded by a combination of mountains and sea?

### **What will the students learn?**

The syllabus has been adapted from the published models of other accredited institutions. The students will learn from four overlapping subjects.

1. Organic Growing; (I.e. Soil, its texture and structure and how we can improve soil fertility and survive the competition from pests and weeds.)
2. Vegetables and salads; (I.e. How to manage the land and grow, harvest and store different groups of crops.)
3. Encouraging Wildlife; (Creating habitats to gradually encourage a balanced eco system in the organic garden.)
4. Plant science.

### **How will the students learn?**

During each week of the course we'll focus on one general theme such as crop rotation, soils, composts, pests etc. We'll also look at one type of crop (e.g. potatoes, onion family etc.) or one facet of plant biology or wildlife. The learning will be in small, hopefully digestible chunks!

All the students at Ynys Las have both different abilities and varying amounts of gardening knowledge. We're not going to try and teach them what they already know. Instead, we're all going to learn by a sharing experiences and pooling acquired knowledge. We'd like you to join in too. If you can add to our fund of knowledge email and share your information with us.

## Virtual Organic Garden

### Week 1 LET'S GET STARTED

Think about these questions:

1. *Why should anyone want to grow their own organic food?* There must be good reasons.
2. *If you're choosing a site for growing food crops what things would you take into account?*

List down your ideas then compare your answers with our list at the end of this week's notes.

### What are we going to grow at Ynys Las?

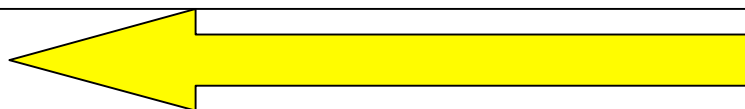
To give the students practical experiences of growing crops they each have been given a weedy rectangle of soil measuring 5 metres by 1 metre. This narrow plot is useful. There is enough space to grow a variety of crops but not too much space to be daunting! In addition it is possible for the students to reach all their growing area without standing on and compressing the soil.

#### “Rotating” the crops.

Most organic growers “rotate” their crops. They grow different crops on each area of soil each year. This organisation helps to prevent both diseases and pests getting a foothold in one area of the plot. It also means that the grower can make best use of the materials available to improve the fertility of the soil because different groups of food crops have different needs.

Each students plot will be divided into four areas. Here is the organisation they'll use on their plot this year. Next year the students would move each group to the left.

<p><b>Potatoes</b></p> <p><i>Potatoes are “hungry” crops. They need fertile soil. We’ll dig trenches and fill them with well rotted horse manure before we plant our crop.</i></p> <p>We’ll plant “Earlies” (7<sup>th</sup> March) and “Second Early” varieties. (21<sup>st</sup> March)</p> <p><u>Must avoid blight</u></p>	<p><b>Legumes (peas and Beans)</b></p> <p><i>Legumes are useful. Just growing them can help improve the fertility of the soil. We’ll bury some organic material in trenches before we plant the crops. We’re going to lime the soil.</i></p> <p>Broad Beans (14<sup>th</sup> March)</p> <p>Mange Tout Peas (21<sup>st</sup> March)</p> <p>Climbing French Beans (25<sup>th</sup> April)</p>	<p><b>Brassica (Mainly the cabbage family)</b></p> <p><i>If we had some well rotted compost we’d have put this on the soil during the winter. However we’re going to grow a crop of green manure here before we plant out any brassica seedlings.</i></p> <p>Green manure (14<sup>th</sup> March)</p> <p>Spring Cabbage (sown under protection on 21<sup>st</sup> March)</p> <p><u>Club root problem</u></p>	<p><b>Others. Includes onion family ( onion, leek etc.), root crops (carrot, parsnip etc.), salad crops ( lettuce, tomato etc.) plus sweetcorn, courgettes etc.</b></p> <p>Onion Set (14<sup>th</sup> March)</p> <p>Sweet Corn (11<sup>th</sup> April)</p> <p>Salad Leaves (18<sup>th</sup> April)</p> <p>Parsnips and radish (21<sup>st</sup> March)</p> <p>Carrots and spring onions (18<sup>th</sup> April)</p>
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Next Year each group will move one area this way.

## **The reasons for our rotation.**

We'll focus on just one of the four areas to understand the reasons for our rotation. I.e. The potato plot. We know that potatoes need a very fertile soil to produce a good crop so we'll dig well rotted manure into the soil to feed them. Next year we'll renew the fertility by burying some more organic matter into this particular patch of soil. It won't need to be our best well rotted stuff because the legumes (peas and beans) that will grow there can produce one of the important elements they need from the air. The organic stuff we buried will keep the legume roots moist but will be rotting down to feed the next crop... the brassicas (cabbages).

Before we grow the cabbages on this patch of soil we have to take precautions against a vicious soil infection called *club root*. This is a disease spread by a fungus in the soil and can badly damage cabbage plants. Once the disease is in the soil it takes many years to eradicate it. However, if you add *lime* to the soil before planting brassicas you can prevent this problem. Sadly, potatoes don't grow so well in limey soil. They look scabby! So it's best to keep the potatoes and the brassicas well apart in the rotation.

Finally in one season we'll grow a wide variety of different crops in this area of soil. The onion family (onion, leek etc.), root crops (carrot, parsnip etc.), salad crops (lettuce, tomato etc.) plus sweetcorn, courgettes etc. all need quite specific soil conditions.

### **Do you have to rotate crops?**

No, many organic gardeners have a more flexible growing pattern. They grow crops in a more random pattern with different crops usually occupying a different space as an opportunity occurs. I.e. winter salad crops or leeks could go in the space left by the harvested potatoes. However, the rotation plan we are using gives us an opportunity to demonstrate some other organic growing principles. These include: *Intercropping*: Growing two crops together which germinate and mature at different rates. E.g. radish and parsnip.

*Catch cropping*: While the brassica plot is weed free and empty we're going to grow a quick crop of *green manure* to maintain the fertility of the soil. We'll bury this green manure crop to feed the cabbages when they are planted.

*Companion Planting*: We're going to plant carrot and spring onions alongside each other. The smell of the onions will deter a pest (carrot fly) that seeks out carrots by their smell.

### **Potatoes**

Some organic gardeners don't bother to grow potatoes. They take up a lot of room and locally grown crops can be bought quite cheaply. Other organic gardeners see them as a useful vegetable as they are fairly easy to grow and great at suppressing weeds.

### **So what do you know about potatoes?**

Try and answer these questions.

1. What are the main types of potato?
2. Why do most gardeners buy potato seed rather than saving their own?
3. How and why are seed potatoes "chitted"?
4. What soil conditions do potatoes need to grow well?
5. What is "earthing up" and why do potato growers do it?
6. What are the main pests and diseases that can affect a potato crop and how can you reduce the effects of these problems?
7. How do you harvest and store potatoes?

Now compare your answers with ours!

### 1. What are the main types of potato?

The main types are “Earlies,” Second Early and Maincrop. These terms just relate to the time in spring when the seed potatoes are planted. The leaves of potato plants are damaged by frost so whatever type you plant you have to be able to protect the plant from freezing. Listen to the weather forecast and drape old sheets and curtains over the leaves when frosty nights are forecast. In West Wales “earlies” can be planted at the beginning of March. Second Earlies can be planted at the end of March and Maincrop during April.

### 2. Why do most gardeners buy potato seed rather than saving their own?

Viruses and eelworm are problems that can build up by saving your own seed. Most seed potatoes are certified as being free of these problems.

### 3. How and why are seed potatoes chitted?

When you buy seed potatoes store them on egg boxes in a cool, frost free, light place. Shoots and roots will begin to form from the eyes of the potatoes. There will be rapid growth when you plant the potatoes provided you don't damage these shoots.

### 4. What soil conditions do potatoes need to grow well.

Potatoes will grow on just about any soil as long as it's not waterlogged and is well manured or composted. They are an important element in a rotation and organic growers wouldn't dream of growing them on the same ground two years in succession. Each seed potato needs to be planted 20cm deep at least 30 cm. away from its neighbour. Don't put lime on the potato crop. You'll get scabby potatoes if you do! Remember, developing potatoes need lots of water.

### 5. What is “earthing up” and why do potato growers do it?

“Earthing up” means dragging soil into a heap over the developing potato shoots. It helps protect young shoots from frost. Since the crop develops from these shoots the developing potatoes are covered by soil. They will turn green and be inedible if they are exposed to sunlight.

### 6. What are the main pests and diseases that can affect a potato crop and how can you reduce the effects of these problems?

Blight and slugs are the worst problems and both are usually at their worst in wet summer weather.

Blight is an air borne fungal disease and may produce brownish patches on the leaves from July onwards. If you don't act quickly you will lose the whole crop. If you see any sign of the disease cut all the foliage off every potato plant immediately taking care not to let the diseased foliage touch the soil. Leave the potatoes in the ground for a few weeks then harvest them.

In West Wales where blight is prevalent, the best protection is to plant Early and Second Early potatoes and get them out of the ground in July before the risk is greatest. This is a good defence against slug attack too!

As an added precaution, at Ynys Las we're going to plant some new blight resistant varieties of potato. Blight spreads to tomato plants. Our potato crop could damage the commercial crops of salad tomato being grown on the site, so we need to be particularly careful.

### 7. How do you harvest and store potatoes?

Try to harvest the crop onto clear ground on a dry day. Get some help from an eagle eyed member of the family to spot those small potatoes that hide from view. Use a fork to harvest them, digging from the side of the drill. Dry and sort your harvest according to size. Use those potatoes that were hit with the fork first. Store the crop in paper or hessian sacks in a cool dark dry place where mice can't get them!

## Answers

There are many reasons *why should anyone want to grow their own organic food?*

The reasons include:

1. Organic growing uses natural methods and is more sustainable than some other methods of food production.
2. Organic growing depends on a living soil. It encourages wildlife.
3. It is less likely to pollute water and air because it does not use chemical soil additives or sprays.
4. As the grower you have a better idea of how your food is grown.
5. The food has not travelled many miles from grower to consumer and won't need packaging in materials that end up in landfill sites.
6. The food can be picked and eaten "fresh" and may have more taste.
7. Growing organic food can be good physical exercise and solving the problems that arise can be mentally stimulating too!

When you're *choosing a site for growing food crops what things would you take into account?* Here are some of the things to look out for.

1. Can the food plants receive sunshine for light and warmth? Is there shelter from either buildings or trees?
2. What is the soil like? Is there enough depth of soil for food plants to grow and what is the drainage like? Food plants don't easily grow in bogs or deserts.
3. Can the weather damage the crops? Do frosts linger or is there shelter from damaging winds?
4. Is there water available for irrigation?
5. Are there particular pests or diseases in the area that can spoil your crops?
6. Are there pernicious weeds, remains of buildings or soil contamination that can interfere with your growing plans?