

Virtual Organic Garden

Week 11 June 13th

This week we're consolidating what we've done over the previous sessions at Ynys Las. Some crops, such as radish, salad leaves and mange tout are gradually being harvested. We're sowing both winter salad leaves and late cabbages in modules so we can replace the potatoes and broad beans when they are harvested in July. We're planting out into their growing positions crops such as pumpkin and courgette.

Revision: Here are some questions on the principles of organic gardening that we've covered in previous weeks. Try and answer them.

Some answers in note form are provided on later pages.

1. What are the benefits of adding compost to the soil?
2. What should a healthy soil contain?
3. What is the difference between soil texture and structure and can you improve either?
4. How would you easily identify:
 - a clay soil
 - a sandy soil
 - a sub surface pan
5. How can you prevent soil nutrients from leaching out?
6. How would you improve a clay soil?
7. What would be your ideal soil?
8. What are the benefits of raised beds?
9. What are the benefits of green manures and how should you use them?
10. List some green manures that fix nitrogen?
11. Write an organic source for each of these plant nutrients?
 - Calcium
 - Potassium
 - Nitrogen
 - Phosphorous
12. What precautions should you use when working with manure?
13. How can you make liquid manure?
14. There are three terms that describe the product of composting. What are they and what do they mean?
15. How would you make a hot composting heap?
16. What makes a compost heap work? What might stop a compost heap from working?
17. What is sheet composting and what are the advantages and disadvantages?.
18. How would you make and operate a worm composting bin?.
19. List the damage caused by these pests and as many organic ways as possible to deal with:
 - Slugs

- Aphids
- Carrot root fly

20. How is soil or compost sterilised and why is it useful?

21. Name and describe fungal diseases that affects:

- Roots.
- Leaves.

22. Describe some organic methods of weed control

Here are my answers, in note form to the questions. If your answers are more detailed and contain extra information give yourself a pat on the back!

1. What are the benefits of adding compost to the soil?

Return nutrients, crumb structure improved, aeration improved, moisture retention increased, health of soil and crops improved, worm and other organisms increase. Reduce waste to landfill and promote garden biodiversity.

2. What should a healthy soil contain?

Minerals (e.g. phosphorous, potassium, nitrogen,) air, moisture, organic matter, living organisms

3. What is the difference between soil texture and structure and can you improve either?

Soil texture depends on particle size and is difficult to change. The structure can be improved by adding organic matter, lime and by cultivation.

4. How would you easily identify:

a clay soil

Looks shiny when you rub it, cracks when dry, compresses to a dense mass when wet

a sandy soil

The soil feels gritty when you rub it. It is dusty when dry and disintegrates even when compact and wet.

a sub surface pan

There is a lack of roots beneath a distinct compact clay layer in the soil.

5. How can you prevent soil nutrients from leaching out?

Keep the soil covered with crops, plastic or mulch. Planting cover green manure crops.

6. How would you improve a clay soil?

Adding lime, manure or compost. Digging in winter prior to frosts. Avoid compaction by not walking on it.

7. What would be your ideal soil?

A loam. A mixture of sand, silt and clay

8. What are the benefits of raised beds?

Easy to cultivate without walking on the soil. Easy to manage a rotation when you have clear boundaries.

9. What are the benefits of green manures and how should you use them?

They retain nutrients in the soil when not being cropped. Legumes improve fertility. Cover soil and prevent leaching, Attractive, smother weeds. provide habitat for beneficial insects. When dug in , before they flower, they improve the structure of the soil by increasing biological activity.

10. List some green manures that fix nitrogen?

Field beans, alfalfa, clover, lupin, winter tares. (Not mustard, rye grass or phacelia)

11. Write an organic source for each of these plant nutrients?

- Calcium Lime, eggshells, seashells
- Potassium seaweed, comfrey, wood ash
- Nitrogen hoof and horn, shoddy

- Phosphorous bonemeal

12. What precautions should you use when working with manure? *Cover and leave it to "ripen." Treat as a hazardous waste. Wear rubber gloves. Don't put fresh manure around growing plants.*

13. How can you make liquid manure? *Steep comfrey or nettle leaves or animal manure in a barrel of water. Dilute at least 4:1 and water on crops.*

14. There are three terms that describe the product of composting. What are they and what do they mean? *Fresh organic matter, humified organic waste, humus. The important one is humified organic waste. It's partially decomposed, unrecognisable from original state. It will be broken down by soil organisms into gums, full of nutrients, which will help crumb structure*

15. How would you make a hot composting heap? *Collect materials together in separate piles. Build in layers mixing green materials with tough strawy ones. Add moisture to keep heap damp but not soggy. Add lime, potash and urine or liquid manure as an activator. Cover and insulate. Turn regularly.*

16. What makes a compost heap work? *Fungi and bacteria to start with. They can produce heat. As the heap cools down larger organisms such as worms woodlice and slugs move in.*

What might stop a compost heap from working?

Too dry, too compact, too acid, too wet, too cold.

17. What is sheet composting and what are the advantages and disadvantages?

Fresh organic matter is spread over the ground or incorporated in trenches. Suppresses weeds, feeds soil life, less labour required, conserves moisture, prevents leaching, but is untidy slow and may host weeds and pathogens.

18. How would you make and operate a worm composting bin?

Create a sheltered and protected environment with air, moisture and fresh organic waste. Introduce large number of red composting worms. Feed on a regular basis. This low temperature material is very fertile but may contain weed seeds etc.

19. List the damage caused by these pests and as many organic ways as possible to deal with:

- Slugs

Attacks and eats seedlings and plant leaves. Leaves slime trail. Protect with barriers of dried eggshells grit, prickles. Encourage predators hedgehogs, thrushes, frogs and beetles. Control with beer traps, and soil inoculation. Cultivate around growing plants. Encourage rapid growth.

- Aphids

Large clusters of scaly insects that feed on sap of plant and may introduce diseases. Symptoms may include yellowing and wilting of plant. Companion plant to encourage predatory insects such as ladybirds and hoverfly. Spray with soft soap to wash off scale or knock onto soil with high pressure water jet. Derris or pyrethrum.

- Carrot root fly

Yellow wilting flowers and damaged crop. Barriers at least 60 cm high. Keep soil firm around growing plants. Companion plant with aromatic plants

20. How is soil or compost sterilised and why is it useful?

Steam or heat to at least 80°C. Kills most bacteria, weeds and pests but not nitrifying bacteria. Useful for germinating seeds.

21. Name and describe fungal diseases that affects:

- Roots.

Clubroot, damping off, honey fungus

- Leaves.

rust, scab, blight, mildew, black spot

22. Describe some organic methods of weed control

Mulching, surface cultivation, suppression with leafy plants, flame gun, hand weeding, green manure and ground cover