3. THE ANSWER LIES IN THE SOIL

About Soil ....

- There are two schools of thought when preparing ground for planting vegetables. There’s the “Dig” school that prefers to turn soil over, incorporating compost and other additives and removing any roots that may suck moisture and nutrients from the soil. However, even the “Don’t Dig” school of gardeners, protective of soil micro organisms, still need to check for hungry tree root systems near the surface.

- Most Garden plots have a balanced pH but it’s helpful to check soil pH with a testing kit. Soil should be between 6 (slightly acidic) and 7 (neutral). Nutrients are more available in the soil at this pH range. Soils which are too acidic (below pH 5.5) should be limed. Apply sulphur to soil which is too alkaline (more than pH 7.5).

- To help avoid disease, vegetable plantings should be planned to avoid successive crops of closely related plants in the same patch. If possible, similar crops such as tomatoes in the same patch of soil should be at least two years apart.

- Except for areas where plants such as carrots and parsnips which are unhappy in well composted soil, a generous 50/50 mix of compost and Biowise or other soil conditioner at the beginning of summer and when the weather cools down greatly benefits the soil. If planting is postponed for at least a fortnight after adding compost etc., worms have an opportunity to work their wonderful soil magic.

- Worm castings from worm farms make a great difference to soil and diluted worm wee is a superb plant tonic.

- Wetting agent: the addition of a commercial wetting agent or a clay-based additive such as Bentonite helps to keep soil moist. Cat litter has a high percentage of clay.

About Using Manure

Gardeners are requested to avoid applying manure directly onto plots. Reasons include:

Health: Various pathogens such as E.coli may be present in fresh manure and can cause illness to individuals eating fresh produce if applied directly onto allotment. This risk is reduced when manure is used in the compost bays and broken down with the addition of straw, grass clippings, garden clippings/rubbish and newspaper. When the compost bays heat up, this kills the problem bacteria.

Water Evaporation: Manure holds water and is dark so will wick the moisture up from the soil and hold it close to the air for rapid evaporation.
Economic
1. One shovelful of manure on the Garden does not provide as much nutrition as a shovelful which has been used to make compost.
2. Manure is the most expensive item in the Garden’s budget.

*It is important to work together to use it wisely.*

About Planting

- Seeds or seedlings? Direct sowing of seed and thinning out young seedlings is ideal for many crops, such as radish, turnips, parsnip and carrots. For other crops it is more convenient to buy seedlings or germinate from seed.
- Seedlings such as onions and beetroot thrive if separated when planted out.
- If setting up climbing frames, an east/west orientation is best.
- If star pickets are used to set up shade cloth shelters or frames for climbing plants, the location of underground reticulation must be checked beforehand.
- The best time to plant summer crops is between late October and mid-December as they have an excellent chance to get established before the weather becomes really hot.
- The best time to plant winter crops is when the soil is still warm at the end of summer; early March to mid-May.
- Great ways to protect plants during summer include:
  - Piling straw around plants to reduce soil exposure to the sun.
  - Overhead shade cloth.
  - Dense planting to reduce soil exposure
- Lots of flowers (nasturtium, dianthus, gerbera, verbena, snapdragons, petunias, shasta daisies, marigolds, phlox and celosia) are great for attracting pollinators and other beneficial insects and are of course wonderfully colourful.
- A green manure crop at the end of summer adds life and love to a tired overworked patch. Green manure crops? Try cow pea, mung bean, soy bean or millet.
- To help make the most of precious water resources:
  - Consideration should be given to the type of crop being planted. For example, if planting seeds and the weather is hot, a once a day watering from the reticulation system may not be enough.
  - Potential size and location of plants should be checked to ensure tall or bulky plants (sweet corn, broccoli or rhubarb, artichoke etc) are directly in front of sprinklers. A handy way to conserve water is to dig mini trenches (about...
10cm deep) and plant seeds or seedlings in the hollow. Cover lightly with straw/pea hay to help retain water.

- A successful technique for keeping zucchini, pumpkin, melons, butternuts and other sprawling summer plants moist is to build small mounds (200-250mm high) of compost and Biowise or other soil conditioner mixed with existing soil. Making a hollow in the centre of each mound and planting the recommended number of seeds in the middle is the next step followed by covering the hollows with a light covering of straw or pea hay.
- Shading by other plants reduces the sun’s benefit and it makes practical sense to avoid planting tall and short vegetable crops side by side where a short crop is likely to be shaded.

- Contamination from invasive couch, nut grass, sweet potatoes, weeds, mint will put a plot “at risk”, as will uncontrolled outbreaks of white fly and other tiny pests which, if unchecked, spread quickly to other plots.

- All plants benefit from weekly watering with liquid plant tonics/fertilizers such as diluted worm wee, Powerfeed, Thrive, Seasol etc.

- Weeding is a rewarding job at any time of the year, reducing competition between lovingly nurtured vegetables and space-hungry invaders. Tedious but rewarding!

- Companion Planting: True companion planting means mixing species which are said to grow better in each other’s company than alone – and avoiding mixing those which adversely influence each other.
  - Onions and related plants grow well with carrots but react badly with most other vegetables, particularly beans and peas.
  - Carrots grow well with lettuce, broad beans, peas and radishes, as well as the onion family.
  - Cabbages grow well with potatoes and cucumbers.
  - Potatoes prefer beans, peas and celery as well as cabbage but don’t react well with tomatoes.
  - Tomatoes grow well with asparagus, parsley and basil.
  - Peas grow well with turnips, carrots, cucumbers, potatoes and sweet corn.
  - Lettuce grow well with radishes and carrots.
  - Celery and cauliflower grow well together. Celery also grows well with leeks and tomatoes.

See Appendix 3: What to Plant and When
About Plant Pests

(See also Appendix 4 Plant Pests and Diseases)

Some plants, particularly herbs, are very effective at discouraging insect pests from attacking nearby vegetables.

- Marigolds of the Tagetes species, known as French or African marigolds, reduce nematode infestations.
- Southernwood, also known as ‘ladslove’, repels aphids and cabbage moth.
- Fennel repels flies and fleas.
- Thyme and dill repel cabbage moth.
- Rosemary repels leafhoppers, aphids and caterpillars.
- Mint is vulnerable to caterpillar attack but repels many other insects.
- Wormwood repels fruit fly.
- Tarragon helps repel snails.
- Garlic repels many insects.

Home-made Pest Repellents

**Problem:** Aphids, mealybugs, mites, scales, and thrips

**Spray:** Ammonia

**Recipe:** To deter aphids, mealybugs, mites, scales, and thrips, spray with a mix of one part household ammonia with seven parts water.

**Problem:** Cutworms wireworms whiteflies (slugs too)

**Spray:** Garlic

**Recipe:** Here’s a recipe for a garlic spray that fights slugs too. To make this smelly spray, use these ingredients:

- 1 garlic bulb
- 1 quart of water
- 1 medium onion
- 1 tablespoon of cayenne pepper
- 1 tablespoon liquid dish soap

Crush the garlic, mincing it fine, add finely chopped onion, and rest of the ingredients except the soap. Wait an hour before adding the soap to the mixture. The spicy ingredients must sort of stew or steep, almost like tea. After an hour, add the soap and your non-toxic spray is ready to use! This can be stored in the fridge for a week.

Another Garlic Spray recipe.

1 pint of water
1/4 cup of dish liquid
2 teaspoons of paraffin
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6 tablespoons of chopped garlic
Soak the whole garlic in the liquid paraffin for at least 24 hours. After a day, add the dish liquid and water to the mixture. Remember to shake it very well. Strain the solution and store it in a glass jar. This lasts around a week.

Problem: Fruit Fly
Bait Recipe:
A small empty bottle.
Anchors - spiced malted vinegar, available from any food store.
1 teaspoon of raw sugar.
2 drops of any dish washing detergent.
A length of wire.

Drill holes in bottle and using a funnel pour in sugar, add vinegar to slightly less than half way point on bottle. Add the detergent, replace lid put on wire and hang in tree. Place baits in fruit trees and trees that do not bear fruit to draw flies away from the fruiting ones. The bait works by luring the fly in with the aroma, the detergent breaks the surface tension of the water so when the fly lands on the water instead of being able to rest on top, it will drop into the water and eventually drown. Check baits regularly to see what sort of flies you are attracting and empty or refill as required. Keep the holes on the bottle small to avoid having geckos crawl in as they will drown as well.

Problem: Insects with attitude
Spray: Chilli
Recipe:
8 – 10 red chillies, finely sliced
1 tblspn of soap flakes or grated bar soap
1 litre boiled water
Combine ingredients in a jug or jar and set aside for 24 hours. Strain and pour into a spray bottle and off you go.
The soap flakes in this solution assists the spray to stick to the plants but you must wash your produce carefully when harvesting

Problem: As above
Spray: Garlic & hot peppers
Recipe:
Use a mixture of garlic and hot peppers to make a pest repellent. Chop up and mix together some garlic cloves and jalapeno or other hot peppers (or hot pepper sauce). Put in a spray bottle and add water. Spray tops and undersides of leaves to create a barrier for all kinds of destructive pests.

Problem: Leafspot, scab, black spot and mildew
Spray: Cider Vinegar
Recipe:
For problems with leafspot, scab, black spot and mildew, mix 3 tablespoons of cider vinegar with a gallon of water. Spray infested plants (best time is in the morning).

Problem: Mildew
Spray: Milk and water
Recipe: A 50/50 mixture of milk and water is a great mildew preventative and treatment. Spray weekly to prevent mildew or thoroughly spray at the first sign and every 3 days as treatment.

Problem: Mould, mildew and fungus
Spray: Baking soda
Recipe: Baking soda can be used to make an effective treatment for mould, mildew and fungus. If you have any of these problems, mix a tablespoon of baking soda, 1 gallon of water and 3 tablespoons of vegetable oil. Fill a spray bottle with this mixture and spray plants, making sure to cover completely because some of these problems can exist where you can’t see them.

Problem: Pathogens including blight
Spray: Compost and green tea
Recipe: These can help keep pathogens (including blight) away from plants. Just fill a 5 gallon bucket with water and let stand for 24 hours to remove additives. Add a quart or 2 of good compost or manure and let sit for 1 or 2 days, stirring occasionally. Strain and drench the plant areas or thoroughly spray leaves including the undersides. This also gives plants a safe natural feeding.

Problem: Slugs & Snails
Spray: Soap
Recipe: A good way to stop the slugs is with soapy water. That's right, you can just use your old, dirty dishwater! Put some in a watering can or even use a pitcher to pour it over the plants. Many bugs don’t like their lunch spoiled by a soapy aftertaste! For a stronger solution, mix 3 tablespoons of liquid detergent into a gallon of water - use weekly. Or Mix one tablespoon dishwashing soap, such as Ivory Liquid or Shaklee’s Basic H, in one gallon of water. Test spray a few leaves of the affected plant; if no damage results, spray the whole plant.

Or
Beer. To keep snails and slugs away from your plants, sink a saucer or other shallow container until the rim is level with the ground and fill with beer. The slugs and snails are attracted to the beer and will crawl in and drown. Change the beer every few days so that it remains effective.

Or Stir one tablespoon of liquid dishwashing soap into one cup of vegetable oil (peanut, safflower, corn, soybean, or sunflower). Mix 1 to 2 teaspoons of the soap and oil blend with one cup water, and apply to affected plants.

Or Garlic Spray (see above).

If making a pest repellent home brew doesn’t appeal, there’s a great range of pyrethrum/ garlic/chilli combinations available in nurseries and hardware outlets. Caution is required when buying sprays as some manufacturers add tiny amounts of toxins to make their products even more effective.