

Growing with Schools

Crop Rotation

Why bother?

To break the life cycle of pests and diseases:

These can build up in the soil over time, or remain in the soil after an affected plant has been harvested.

For example: club root affects brassicas and is very difficult to get rid of, but easy to prevent.

To manage the nutrient levels in your soil:

By following a hungry plant with one that doesn't like a very rich soil, you create the best conditions for each crop.

Legumes (beans and peas) add nutrients to the soil that will be used by the next crop.

To improve soil structure:

Alternating deep-rooted and shallow-rooted plants can improve the structure of your soil, making nutrients more readily available, drainage more efficient and erosion less likely.

Basically:

Keep a record of which family of plants went where. Don't plant the same family in the same spot for a few years!

Usually, the rotation is implemented in a three or four year plan. Don't worry if it doesn't quite go to plan, it will most likely be okay. This is an example of a four year crop rotation. Some plans have roots and brassicas the other way around. In a three year version, brassicas could be started off in pots and squeezed in after the first early potatoes are lifted.

Year One

Bed 1: **potatoes** (a heavy feeder)

Bed 2: **brassicas** (a lighter feeder)

Bed 3: **roots** (a very light feeder; a very rich soil causes the plants to form many small roots instead of one big one)

Bed 4: **legumes** (takes nitrates from the air and fixes them into a usable form as food)



Year Two

Bed 1: brassicas
Bed 2: roots
Bed 3: legumes
Bed 4: potatoes

Year Three

Bed 1: roots
Bed 2: legumes
Bed 3: potatoes
Bed 4: brassicas

Year Four

Bed 1: legumes
Bed2: potatoes
Bed3: brassicas
Bed4: roots

Other groups!

Not all vegetable and fruit crops fit in to these families.

You also have cucurbits and alliums, salads, sweetcorn, Jerusalem artichokes and all manner of unusual veg that need to go somewhere. But where?

You can fit these in where their nutrient requirements will be met, as long as they won't upset (or be harmed by) the disease and pest levels present.

With the potatoes:

Tomatoes, aubergines, peppers, garden huckleberries, tamarillo, tomatillo, etc are all in the same family, so vulnerable to the same diseases.

Jerusalem artichokes break up the soil in the same way and are similar level feeders (they are in the same family as sunflowers).

Pumpkins, courgettes and cucumbers are all hungry feeders and big enough not to be shaded out by potato foliage.

With the brassicas:

Turnip, swede, radish, Chinese cabbage and mustard are all brassicas.

With the legumes:

Pumpkins, etc could be planted between rows of climbing peas and beans, as the nitrates produced will help feed them and they shouldn't compete for light (provided the climbers are given a head start!). Try the 'three sister' system.

With the roots:

Onions and garlic are supposed to confuse the carrot root fly, so alternating rows is a good idea.

Don't rotate!

A **permanent bed** for perennials such as asparagus, soft fruit and rhubarb is left in place.

A **herb bed** will contain annuals, biennials and perennial plants which all have similar growing requirements and are little troubled by pests and disease.

Teaching ideas:

Crop rotation is a logical way to divide growing tasks between year groups, with each one responsible for a different family.

Planning which plants fit into which bed and why can be linked to informative writing and research activities.

Comparative studies and record keeping (carrots planted with and without onion rows, yields per bed or per year, growth rate of different members of the same family, or different varieties of the same plant.

Designing a rainbow of brassicas or making a willow structure for climbing beans.