



Club Root

Club root is a serious fungal infection of the roots of brassicas such as cabbage, cauliflower, turnip Swede and radishes, which leads to a massively swollen and distorted root system, with a loss of the finer roots. Affected plants generally have stunted growth, purplish foliage and wilting in hot weather, which may recover under wetter conditions. Growth and yield are severely reduced and very badly affected plants may die.

Club root is caused by an infection of *Plasmodiophora brassicae* which is sometimes described as a fungus but is in fact more closely related to the slime moulds. The organism produces cysts that remain in the soil until a suitable host is available to infect. The cysts can live for 8 or 9 years so normal rotations are of little use in eliminating the problem. In the presence of susceptible plant roots, these resting spores germinate and infect the root hairs, causing the distortion. It usually infects whenever the soil is moist and warm, so most new infections occur from mid-summer until late autumn.



There are no chemicals available to gardeners to treat club root. So care should be taken in working with non chemical methods.

- Buy only plants they come from a guaranteed club root-free source. It is easily spread, just walking from an infected patch onto a clean patch of land will infect the soil. It can also travel on plants, so do not accept brassica seedlings where the source is not known to be clean.
- If the disease is known to be present, try to give plants a head start by growing them on in healthy soil to a larger than normal size before planting out., Grow transplants in pots of at least 9cm (3 ½ ins) diameter, which give plants head start with a larger than usual healthy root system .
- Club root thrives best in acid wet soils so ensure your brassica bed is well dug adding grit if need be to keep the soil free draining, Take the pH up to 7.5 or even as high as 8.5 by adding lime. Before planting, dig a hole at least 30cm deep and in diameter and then dust with lime to whiten the soil in the hole. Fill the hole with bought in multi-purpose compost and then plant in this.
- Some club root resistant varieties have been developed but remember this is resistance not total immunity.
 - Swede Invitation (Suttons Seeds)
 - Cauliflower Clapton (Thompson & Morgan)
 - Cabbage Kilaxy (Dobies)
 - Cabbage Kilaton (Thompson & Morgan)