Sanitation to manage club root in brassicas

**Recognize the problem**
Club root is a soil borne disease on roots of brassicas such as cabbage, cauliflower, broccoli and rape. Symptoms are first seen above ground as slight wilting and yellowing of lower older leaves. Later, stunting occurs in new growth and the plant eventually dies. Roots are largely swollen (forming galls of size of the plant stem), distorted, and malformed. Club root is often confused with root knot nematodes but galls caused by root knot nematodes are usually more circular and are generally not as large (a few millimetres) as the club root galls (a few centimetres).

**Background**
The root malformation caused by the disease impairs the crop’s uptake of water. When roots die and decay, bacteria are released into the soil, where they survive. This disease survives in the soil for 7 to 10 years. The disease can spread through the soil stuck to machinery, contaminated water, infected transplants, footwear and soil on vehicles. At high soil moisture and in cooler soil, the disease can quickly affect healthy plants. Farm hygiene is very important in preventing the spread of the club root disease to new non-infested properties and in reducing the risk of the disease spreading to non-infested areas on infested properties.

**Management**
- Clean all equipment from soil that enters and leaves a field or farm by washing thoroughly or using high pressure water to ensure that soil is not being transported.
- Purchase high quality seedlings from a reputable source that definitely do not have club root in the soil around the roots. Examine few roots when you obtain new planting material.
- Avoid placing racks and trays on the ground
- Where possible, irrigation dams / streams should not receive run-off from infested paddocks.
- Irrigation water should be taken from the surface, in the stillest part of the dam as club root disease will settle to the bottom, so avoid taking the muddy water from near the bottom of a dam.
- Always work from the least infested areas of the farm to those that are the most infested.
- Erect signs asking visitors to respect your farm hygiene, meaning not to enter fields and walk from field to field.

*Scientific name(s)* > *Plasmodiophora brassicae*

The recommendations in this factsheet are relevant to: Zambia

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