

Management of club root disease in crucifers

Recognize the problem

Club root of crucifer crops is a serious threat in up-country farming. Infected plants show wilting, growth retardation, and misshaped and enlarged root systems. If the infection is heavy, plants will not produce heads and will ultimately die. The specific symptoms of clubroot disease, root swellings, can only be seen after uprooting of plants. The local name for clubroot disease, "Barawa rogaya", or "ala bahinawa" comes from the root enlargement that is caused by this disease.

Background

The pathogen produces resting spores which remain inactive in the soil and germinate in the presence of root exudates of crucifer crops. Zoospores produced from germinated spores enter the plant roots through natural openings and multiply inside the roots, producing root galls. This situation reduces absorption of water and nutrients into the plants. Although club root is a fungal disease there are no fungicides identified to control the pathogen. Therefore, the disease can only be managed by proper crop management practices. The pathogen lives in soil. Lime and poultry manure reduce soil acidity and help to reduce the pathogen population in soil. Poultry manure contains high level of CaO and micronutrients and will help to increase soil alkalinity and crop growth. Wild mustard and wild radishes are important alternative hosts for the pathogen.

Management

- Seedlings can carry the pathogen so the use of disease free seedlings is therefore very important
- Remove galled cabbage roots and roots of alternative hosts to reduce the pathogen population in the soil
- Practice long term (more than 4 years) crop rotation with potato, tomato, bean, leeks, etc. in infected fields
- Incorporate lime into the field at the rate of 4 t/ha two weeks before transplanting. This is the only available control method in Sri Lanka.
- Apply well decomposed poultry manure at the rate of 10 t/ha five days before planting to help disease suppression
- Since the resting spores are not killed during the composting process, clubbed roots cannot be used for composting

Clubbed root of cabbage. (Photo by K.P.Somachandra, RARDC-Bandarawela)



Symptoms in plants. (Photo by T.K.A.I. Hadji, RARDC, Bandarawela)



Scientific name(s) > *Plasmodiophora brassicae*

The recommendations in this factsheet are relevant to: Sri Lanka



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