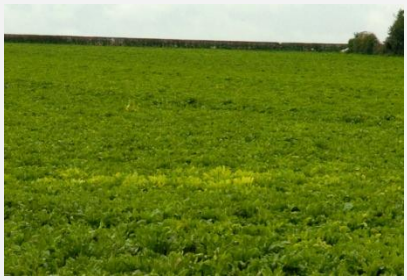
Diseases

Rhizomania and Rhizoctonia

Rhizomania is a disease caused by **Beet Necrotic Yellow Vein Virus.** The virus is spread from plant to plant by *Polymyxa betae*, a root parasite that is widespread throughout beet growing areas of the UK and survives almost indefinitely in soil.

The first sign of infection is usually the appearance in a field of a patch of plants with pale leaves. There are many symptoms of infection but rarely are all present on one plant. Infected plants are likely to have -

o translucent, lime green leaves
o longer and more erect leaf stalks than on uninfected plants
o root bearding i.e. a profusion of lateral roots
o stunted roots
o a constriction or neck at some point along the tap root
o small tumours on the tap root
o brown vascular tissue at tip of tap root (revealed when cut open)



Patch of infected plants in field

Tap roots of infected plants

Cultivation of resistant varieties is the first line of defence against the disease - in recent years seed companies have produced some high-yielding resistant varieties. Good farm hygiene, e.g. reducing movement of soil between fields and farms, should also be practised to prevent spread of the disease. Reducing the frequency of beet in the rotation should help to slow the spread of rhizomania.

Growers who suspect that rhizomania is present on their farm should contact their British Sugar Area manager and send a sample (five roots, foliage removed, double bagged) marked 'Rhizomania Testing' to Broom's Barn Research Station. A laboratory test will confirm the presence of the virus.

Rhizoctonia solani is a widespread soil-dwelling fungus that attacks the roots of plants. There are several 'strains' of the fungus and one of them can damage sugar beet.

It is often found on the roots of plants whose growth has been set back by another problem, e.g. soil compaction. In such cases, any damage by Rhizoctonia is usually assumed to be a secondary effect. Occasionally however, it appears to be the primary cause of stunted growth and deformed roots, particularly on light soils. Badly affected plants are so small that it is pointless harvesting them. On the continent the disease also causes a severe root rot later in the season. Unlike rhizomania the problem does not seem to spread rapidly from field to field, probably because the fungus requires particular soil conditions for it to cause serious damage. There are no recommended control measures, although it would be sensible to reduce the frequency of beet in the rotation if the fungus is severely stunting growth.

Tap root of infected plant

Patch of infected plants in the field

Affected tap roots can have major branches growing out sideways and numerous lateral roots. Diagnosis involves searching for Rhizoctonia on the roots under the microscope. If it can be readily found amongst the lateral roots and on the tap root then it is likely to be largely responsible for any poor growth.