



Pests

Sporadic soil-based pests

Introduction

Soil-based pests can pose a significant threat to sugar beet establishment, reducing plant populations and limiting yield potential before the crop has a chance to develop.

Cutworm

When: April to June

Symptoms: Cutworms feed from the plants at the soil surface, or just below. Seedlings are at high risk since they can gnaw through the stem base. More mature plants will have pitted holes on the storage root. Larvae feed at night

Risk: Rarely enough to destroy a crop, but some species pose a significant threat to newly emerged beet

Severity: The extent of severity of cutworms on the current UK sugar beet crop is not known

Advice: No established threshold, insecticide treated seed (eg. Force ST) can help limit damage during crop establishment



Figure 1. Cutworm

Free living nematodes (FLN)

When: Seedlings and immature plants during wet springs

Symptoms: Free living nematode (FLN) damage, known widely as docking disorder, is caused by a range of nematode types, mainly stubby root nematodes (*Trichodorus spp.* & *Paratrichodorus spp.*) and needle nematodes (*Longidorus spp.*). Feeding by FLN results in stunted growth and plant development

Risk: FLN is most prevalent on light, sandy soil types and will appear in patches in commercial crops. Seedlings and young plants are most at risk and will suffer most in a wet spring, where the water-table is high and the nematodes are therefore active in the rooting zone of the plants

Severity: Yield losses under FLN can be very severe (50%+) as well as reducing the levels of recoverable yield due to the fanged roots being broken at harvest and increased soil tares

Advice: Testing for FLN must follow very precise protocols and be taken with the correct equipment and at the correct time of year to provide the most reliable detection of these nematode species

Control: Early sowing and dry springs offer good opportunities for a crop to establish before the nematodes become active as soil temperatures increase in the spring. Currently, BBRO recommend using NEMguard DE at 10Kg/ha which should provide an economic means of protecting your crops

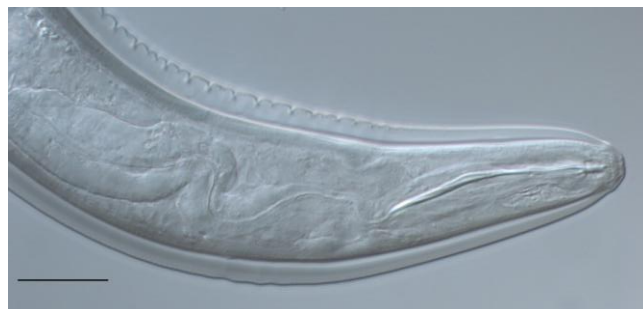


Figure 2. Free living nematode

Leatherjackets

When: Early season, up to June

Symptoms: Lower leaves, petioles, stems and roots of seedlings are eaten by larvae

Risk: Damage is sporadic and feeding tends to occur on damp and warm nights

Severity: Widespread in damp areas of fields and commonly occur after grass crops

Advice: No products registered in sugar beet



Figure 3. Leatherjacket

Millipedes

When: Early season, seedlings and immature plants

Symptoms: Millipedes feed on the roots and stems of seedlings below the soil and can lead to plant death

Risk: Millipede damage can slow plant growth and exacerbate damage from other pests (specifically springtails, symphylids and pygmy beetles)

Severity: Most damaging in high organic and open soils

Advice: Plants are tolerant of damage once they reach four leaf stage. Early establishment will help protect yields

Pygmy beetle

When: Early season, seedlings and immature plants

Symptoms: Small black pits visible on hypocotyl, radicle and cotyledons

Risk: Damage is sporadic and usually low but can increase in areas where beet is grown intensively. Slow growing crops in cool or dry springs will experience greater damage

Severity: Where beetle numbers are high, feeding can cause seedling loss

Advice: Application of a foliar insecticide early in the season can be justified when widespread feeding damage can be seen



Figure 4. Pygmy beetle



Figure 5. Millipede

Springtail

When: Seedlings

Symptoms: Small pits are found on cotyledons from foliar feeding species, prior to emergence, which can lead to uneven and stunted emergence

Risk: Damaging species are white and found mainly on heavy organic soils

Severity: Only pose a serious threat to seedlings pre and post emergence and are active at temperatures as low as 7°C

Advice: Use of Force ST treated seed should provide protection



Figure 6. Springtail

Symphylid

When: Seedlings and immature plants

Symptoms: Roots, stem and root hairs are eaten by symphylids. This results in poor establishment due to plant death or stunted growth

Risk: Favours sugar beet and can survive for multiple years in the soil. They move up and down the soil profile, preferring moist soil layers

Severity: Will vary across fields. Symphylids float in water and can be checked for by crumbling field soil into a container of water

Advice: Use of Force ST treated seed should provide protection

Wireworms

When: April – July

Symptoms: Main tap root or stem of young plants is eaten through and kills the plant. On older plants the larvae may mine into the storage root

Risk: Beet grown up to three years after grass is at greatest risk but can also attack beet crops after cereals, especially on chalky soils

Severity: Infected fields will contain larvae of various ages that result in adults emerging each year

Advice: Dry soils offer good control of eggs and larvae. Avoid growing beet after grasses, clover and lucerne



Figure 7. Wireworm



Figure 8. Symphylid