



A close up of a symphylan adult and a group of eggs.



The damage that symphylans can do under certain circumstances; restricting proper growth and even stopping germination, leaving a gappy crop.

Symphyla – what's in your soil?

They are small and hard to spot with the naked eye, but symphylans can cause significant damage to cane crops in certain circumstances. SRA Adoption Support Officer Jarrod Sartor takes a close look at this tiny arthropod.

Symphylans are centipede-like, soil-dwelling, arthropods. They are creamy-white in colour, about 5-10 mm long, and the young have 6-10 pairs of legs and the adults have 12 pairs of legs.

Because of their small size they are very difficult to find in the soil with the naked eye. Both stages feed off plant matter and can attack the roots of the sugarcane.

Symphylan can be found in all regions, but the damage they cause is most notable in the clay-loams in the Herbert Valley or the granitic-loams in the Mossman and Tully regions. Symphylans are present in the soil all year round with a life cycle of about 5-6 weeks from egg to adult.

Generally, the presence of symphylans can be an indication of a healthy soil and you will usually find one or two in each shovel-load.

Symphylans help break down and decompose rotting plant matter meaning their numbers can rapidly increase when excess food is available and drop rapidly once the food runs out, or the soil begins to dry.

Symphylans become a problem when the population has expanded on rotting plant matter (a disced-in legume crop or weed fallow) and once the plant matter is gone they begin to gather around and feed on the fresh cane roots.

They first attack the apical bud or growth point of the root tip. When secondary buds start to form the symphylans will begin to bore into them; causing the root mass to become restricted and clumped.

High amounts of damage caused by symphylans is quite rare since there has to be a high population density (10 per stool). Damage is worse if the root growth has been slowed, for example if it has been a cold and wet winter after planting.

Typically affected plants will show slow growth and weak tillering because of their stunted root-ball. This can directly or indirectly affect yield as the plant with a restricted root mass will wilt easily in hot weather or not grow at all; making the cane appear patchy throughout the field.

There are various methods to manage symphylans. Spring-planted cane is less susceptible to damage than autumn-plant, due to rapid germination and root growth.

If you are planting into a furrow, in some cases it has been seen that a drill 'rolled' after planting shows less damage; probably because the slightly compacted soil restricts symphylan movement. After discing in green manure, allow time for the material to decay, reducing symphylan population and damage. Chlorpyrifos (e.g. Lorsban™ 500 EC, Chlorpyrifos® 500 EC) and bifenthrin (e.g. Talstar® 250 EC) are registered insecticides for use against symphylans, applied onto the billet and surrounding soil at planting. Insecticide treatments at planting for wireworm will also usually manage symphylans.

All cane growing areas in Australia will have symphylan. They are a natural part of the ecosystem and underground food-web.

Normally they do not feed on cane roots, but at a high population density they can and will cause damage. This damage is ordinarily minor in sugarcane and can be managed, but it is essential to diagnose damage correctly. Field operations like fill-in and hill-up should not be delayed for the sake of some slower growing parts of a block. For more information please read the SRA Symphyla information sheet available via www.sugarresearch.com.au.