



Adult pink earth pearls pictured with another species of earth pearl.

PINK EARTH PEARLS

Eumargarodes laingi

HISTORY

The pink earth pearl or ground pearl has been found in cane in the Millaquin and Fairymead Mill areas near Bundaberg, in Childers and Sarina, as well as the Condong Mill area in northern New South Wales. It is most prevalent in red volcanic loam soils, but also occurs in sandier soils.

Several different species of earth pearls are found in canefields, but only the pink earth pearl, and occasionally the white earth pearl, have a significant economic impact on sugarcane. Adults of other species are yellow and brown.

This scale-like insect was first recorded in 1932 in a Bundaberg canefield by BSES entomologist Reg Mungomery who, being unfamiliar with the insect, collected a specimen to send to the British Museum (Natural History) in London for identification.

Although first identified in Queensland, the earth pearl was also found on wild grasses in North America about the same time, causing speculation that it was native to that continent.

DAMAGE

It is common for yield losses to be as high as 75 per cent from pink earth pearl damage.

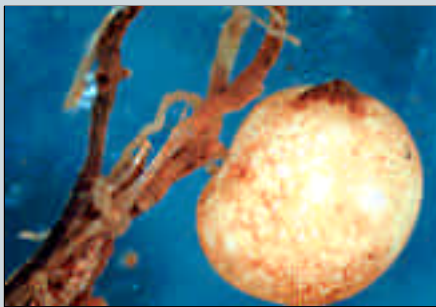
The young of the species (nymphs) form cysts that look like round shiny pearls in the soil. The tiny (1-3 mm) cysts attack the roots of sugarcane, causing damage by attaching themselves to roots and using a hair-like feeding tube to extract sap from the plant.

More than 10,000 cysts may be found in a small stool, giving the appearance of a cluster of grapes on cane roots, however numbers do not normally reach such a level. Heavy infestation first causes stunting of living stools with some stool death in subsequent ratoon crops. Damage is usually patchy throughout the field.

LIFECYCLE



Pink earth pearl cysts.



Tiny cysts use a hair-like feeding tube to extract sap from the plant.

The earth pearl spends most of its life underground in the nymphal or pearl stage where it feeds on the roots of sugarcane and other grasses.

The tough-skinned pearl or cyst is cream-coloured, turning pink as the adult matures. The adults (all female) emerge mostly between October and December and briefly appear on the soil surface, usually in mid to late morning, before re-entering the soil to lay their eggs.

The soft-bodied females resemble mealybugs but do not have the characteristic powdery white covering. They are about 2 to 4 mm in size, bright pink in colour, and do not have wings.

They dig small cavities in the soil in which they secrete a white frothy mass for egg laying. Each female lays hundreds of eggs, each about 0.5 mm in length, then dies.

Small, white, six-legged nymphs hatch from the eggs within two to four weeks and slowly move through the soil seeking a food source. They attach their feeding tube to plant roots and, as they feed, develop the pearl-like cyst or capsule that provides protection against natural predators, such as wireworms and soil beetles, and prevents drying out.

The pearl continues to enlarge in size until it is time for the next generation of females to emerge. The complete life cycle takes at least one year, although this can be variable since nymphs can survive in excess of one to two months when no food is available.

CONTROL

Currently, no effective insecticidal control exists for pink earth pearl, however BSES research has shown that some cultural controls are effective in reducing populations.

- Enforce strict hygiene standards for machinery - earth pearls can be easily spread in soil or moving vehicles and equipment from field to field.
- Plough out heavy infestations early and fallow for 12 months or longer. Ploughing or rotary hoeing several times during the fallow will also reduce pest numbers.
- Keep fields fallow for at least a year to break the insect's cycle; melons or tomatoes can be planted as a fallow crop, but not grasses.
- Select sugarcane varieties, such as Q135, Q136, and Q147, with high host plant resistance to keep earth pearl numbers down and maintain good yields.