

FORAGE FOCUS

No. 18 April 07

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PGG Wrightson Seeds

Porina (*Wiseana* spp.)

Introduction

Porina is the name given to a group of several species of moths that are found throughout New Zealand and attack most pasture species including ryegrass and white clover.

Description and Identification

Porina eggs are small, oval and creamy white initially but turn black within a few hours of being laid. Caterpillars (larvae) are greyish yellow with a dark brown head, and grow up to 60-70mm in length.



FIGURE 1: Porina Larvae

Caterpillars live in vertical tunnels (150-450mm deep) in the soil, emerging at night to feed on the surface, grazing grass and clover from January onwards. Their tunnels are associated with bare patches of pasture, and dead plants along with increased incidence of flat weeds. Tunnel entrances can be found as holes, covered in soil castings and debris held together with silken threads.



FIGURE 2: Evidence of Porina

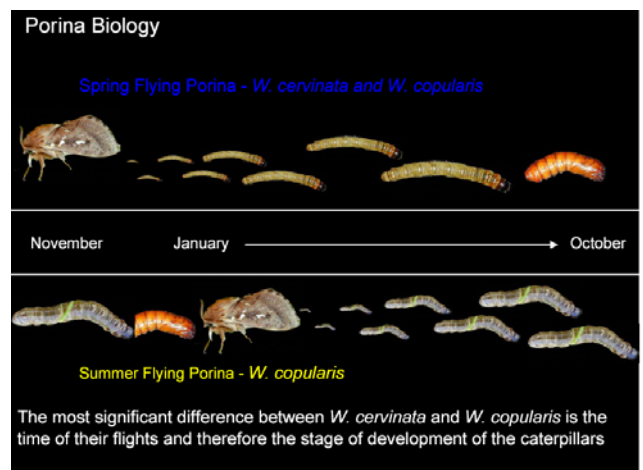
Porina eggs and young larvae need good protection within pasture, therefore populations fluctuate year to year, being worst in years of good summer growth and widespread rank pastures.

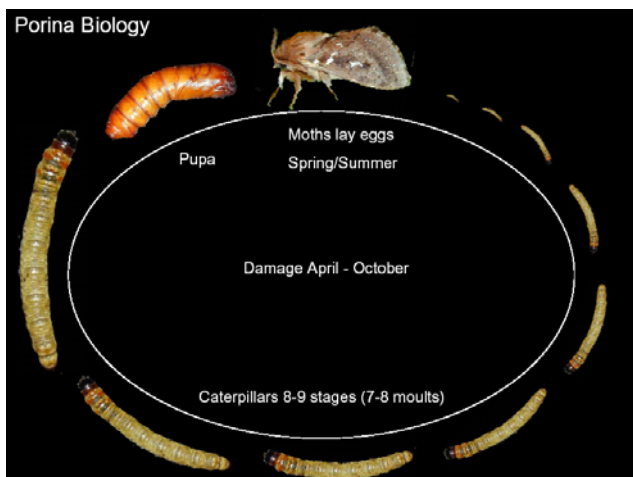
Adult Porina (moths) are a pale brownish-black to dull yellowish-brown with white and black markings on their forewings. Wingspan is 30-40mm and the body length about 25mm.



FIGURE 3: Porina Moth

Adults fly mainly in spring (October-January), and do not feed. Flights are characterised by the moth's strong attraction to outdoor lights. Moths fly at dusk 'topdressing' their eggs on the surface of pasture. A female will scatter up to 3000 eggs, which hatch over the following two to three weeks. Four to six weeks later the 10-15mm long caterpillars build permanent silk-lined burrows in the soil.





Lifecycles courtesy of AgResearch

Prevention, Control and Management

Porina caterpillars damage pastures in late autumn and throughout winter as growth slows. The damage is caused by the larvae feeding on the aerial parts of plants, eating off the foliage at ground level.

To prevent Porina damage, maintain low pasture cover during late spring to reduce survival of eggs and young larvae. Paddocks left for hay or silage, or poorly grazed and rank, are typically worst affected by Porina.

Regular pasture monitoring is required for effective control of Porina. Visual signs of foliage damage or ingested soil casts held together by a fine web usually indicate high populations. A soil sample showing 2-3 caterpillar larvae per spade square will require control measures. Early detection and control of caterpillars (20-25mm long) is recommended as mature caterpillars are very expensive to control.

Porina can be controlled by use of insecticides. Insect growth regulators such as Dimilin® should be applied late January-early March. Organo-phosphate and synthetic pyrethroids can be used later, in which case digging in April will give a good assessment of numbers. If possible apply to a short pasture.

Mob stocking in summer to prevent rank pasture and buildup of debris can give effective Porina control. Intensively graze pasture to 20-30mm in height using high stocking rates (1000 ewes/ha) over a period of a few days. Heavy stocking and/or rolling of effected pastures is another means of helping to control Porina infestations, as the heavy weights will help to squash and effectively kill the larvae.

A recent development in the control of Porina has been the development of AR37 endophyte for ryegrasses. Grasses inoculated with AR37 endophyte have shown resistance to Porina attack, with trials[#] showing that almost all Porina caterpillars die when placed on AR37 ryegrass (see table below).

Survival of Porina on endophyte infected ryegrass, AgResearch, Ruakura[#].

Endophyte Type	% Survival of Porina
Nil Endophyte	95
Standard Endophyte	50
AR37 Endophyte	5

Pastures that have been cropped and cultivated are generally free of Porina damage for the first couple of years after sowing.

[#]AR37 has shown good control of Porina in pot trial studies. The level of field protection is still to be confirmed.

The Cost of Porina Damage

To assess Porina numbers dig to a depth of 300mm. Caterpillar populations of 2/spade square (50/m²) in March can reduce pasture production by 1500kg DM/ha. Caterpillars will typically range from 4-30mm in length, with a high proportion of small caterpillars suggesting damage will increase.

The following equations are suggested as a means of determining the cost of Porina damage:

- average gross margin/ha x ha affected x 0.004 x caterpillars/m²
- average gross margin/ha x ha affected x 0.1 x caterpillars/200mm spade square

20-40 caterpillars per m² (sampled in late summer / early autumn) is the general threshold for taking action, although lower levels are recommended in new pastures, in pastures growing poorly and dry autumns.