

Predicting and detecting grass grub outbreaks

Grass grub damage to pasture is a perennial problem that many farmers have to deal with. Most farmers do not think about managing it or its impact until it is readily visible. To a large extent however, grass grub damage can be predicted several years before it occurs and the likely severity several months before damage starts to show.

Grass grub damage occurs in response to a breakdown of associations between grass grub and a range of disease causing organisms which naturally regulate grass grub numbers. The most common causes of such a breakdown are:

Very hot, dry summers in which case grass grub outbreaks commonly occur 2-3 years later. In such situations damage can occur over whole farms and districts. This can occur in areas that do not regularly experience grass grub damage and may catch farmers unawares.

Cultivation when damage usually appears in the 3rd autumn/winter after cultivation, although this can also be in the 2nd or 4th year. This more usual situation occurs regularly in grass grub prone areas but is not limited to these.

In both instances, if farmers are alert to the danger, pastures at risk can be assessed in mid to late February, much earlier than damage is usually observed. If damaging levels of grass grub are recognised in February this allows 2 months to plan mitigation strategies before damage reduces pasture production and/or persistence.

To assess paddocks at risk, dig at least 10 spade squares, 10 cm deep, in each paddock being checked and sort through the soil to find any grubs present. These will be small, less than 1 cm long, and most likely in the top 3 cm of soil. Count the grubs and calculate the average per hole. If using a 20 cm wide spade and the average number of grubs is 10 or more, or a 15 cm spade and the average is 6 or more (approximately 250/m² in each case), it is very likely that significant damage will occur to that pasture in autumn/winter.

If lower numbers are found damage will be less noticeable but the paddock should be inspected the following year as they will very probably increase to damaging levels at that time.

If digging is left until April/May the numbers of grubs indicative of damage will be 8 and 5 respectively (approximately 200/m²). These are lower than for February because some natural mortality will occur between sampling times.

For more information on grass grub, other pasture pests & weeds go to www.pestweb.co.nz

Control and management options

Usually the first option considered is insecticidal control and if numbers are high this may be the only option available to save the pasture. If insecticide is used, prill formulations will generally give more reliable control of grass grub than sprays but in either case the earlier the insecticide is applied the more cost effective it is likely to be.

Nitrogen can be applied to compensate for grass grub feeding. It will not kill the grubs, rather it strengthens the plants enabling them to tolerate more feeding than otherwise. Nitrogen also makes the plants more nutritious to grass grub which means the grubs eat less root material. Leaving the population intact enhances the build-up of naturally occurring diseases.

At times a decision is made to tolerate the damage. At the very least, sampling in February can allow feed budgeting to take into account reduced production in affected pastures. Again leaving the population intact allows the natural disease organisms to provide natural population regulation in subsequent years.

Heavy stocking is often mentioned in grass grub management but in reality has little effect on grub numbers. It may however assist plant growth and can be normal farm practice.

Heavy rolling using a conventional roller also has little impact on grub numbers as the pressure exerted on the soil is insufficient to kill the grubs.

When populations (100-150 grubs/m²) are detected that are unlikely to cause significant damage in the year of sampling, but are likely to cause damage the following year, Bioshield is an option. This is a commercial formulation of a naturally occurring disease of grass grub and if introduced the year before damaging grass grub levels are reached may prevent such levels eventuating. This product has recently been improved and re-launched.

Pasture species selection.

Some pasture plants are tolerant of grass grub feeding. Tall fescue, cocksfoot, lucerne and red clover all have this attribute and may suit some situations. These plants are not immune from attack but their large root systems often mean grass grub feeding goes unnoticed.

Barrier Combo, with the endophyte GrubOUT U2, has recently been launched. This endophyte produces toxins which are translocated into the roots of infected plants and confer resistance against grass grub feeding. It is too early yet to judge if this pasture mix will perform as well as hoped in the field but is worth keeping an eye on and bearing in mind.

For more information on grass grub, other pasture pests & weeds go to www.pestweb.co.nz

Best Practice for Managing Grass Grub

