3-8 Ryegrass Staggers – Management options

What is Ryegrass Staggers?
Ryegrass Staggers is the nervous disorder animals suffer from as a result of eating pasture containing high levels of the ryegrass endophyte chemical Lolitrem B.

When does Ryegrass Staggers occur?
Outbreaks of Ryegrass Staggers occur from late November until the end of April, but the problem is sporadic and tends to be worst from late January to early February. Risk periods can persist when a sustained hot, dry spell is followed by rain, especially when pastures are over grazed. Most perennial ryegrass in New Zealand contains naturally occurring endophytes (referred to as “wild-type”).

What is the effect on animals?
Symptoms are most likely seen in stock which graze seed heads or graze into the base of the pasture where the endophyte chemical is concentrated. Symptoms start with tremors in the neck and head, then stock experience heavy tremors and have stiff legs. Seriously affected animals often fall over when disturbed. Calves appear to be more susceptible to ryegrass staggers than older stock.

The presence of endophyte chemicals in the diet may cause small reductions in milk production, but effects are variable from season to season and year to year.

What is ryegrass endophyte?
Ryegrass endophyte is:
- A naturally occurring fungus found only in perennial ryegrass and a few hybrid ryegrasses
- It grows inside the plant and is not visible to the eye
- The endophyte is beneficial to the plant, producing chemicals that reduce insect damage (e.g. from Argentine stem weevil, black beetle and pasture mealy bug)
- The endophyte also produces a chemical that causes Ryegrass Staggers and a chemical that may increase heat stress

What are the chemicals produced by wild endophyte and their effects?

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Effect</th>
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<tbody>
<tr>
<td>Peramine</td>
<td>Provides protection against insects</td>
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<tr>
<td>Ergovaline</td>
<td>Provides some resistance to black beetle, but may increase heat stress</td>
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<tr>
<td>Lolitrem B</td>
<td>Causes Ryegrass Staggers occasionally</td>
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How does endophyte survive in pasture?
If seed without endophyte is sown, the resulting plants will never have endophyte. Endophyte can only be transferred through seeds, from plant to offspring. It does not pass from one existing plant to another.

Where ryegrass without endophyte is sown, the resulting pasture often has some plants with endophyte. These arise from germination of existing ryegrass seed in the soil or existing plants that contain endophyte.
How can I prevent Ryegrass Staggers?

Specific management will vary with the farm business goals, pasture type, season and locations. However, some general principles can be used.

The highest levels of endophyte toxins are in the ryegrass leaf sheath, seed head and seed. Management that increases the leaf content of ryegrass and reduces intake of seed head and plant parts near ground level will reduce the chance of ryegrass staggers.

This includes:

- Feeding a high quality supplement (silage, last season's hay, turnips, maize)
- Leaving higher post-grazing residuals
- Pasture topping or mowing of seed heads
- Grazing endophyte-free / low-endophyte/ novel-endophyte ryegrass (Farmfact 1-24) pastures if available (break feed if there is only a small area available)

Supplementary feeding with high quality pasture silage is the most practical way for most dairy farmers to manage ryegrass staggers by substituting supplement for pasture.

Seriously affected stock should be:

- Managed separate from the main herd and milking frequency reduced to once a day
- Fed a high quality supplement (silage, last season's hay, turnips, maize) to reduce their intake of ryegrass
- Fed pasture of another species - tall fescue (not wild), annual ryegrasses, cocksfoot, lucerne, clover or chicory are excellent
- Moved slowly and left undisturbed as much as possible
- Not grazed in paddocks with hazards; ponds, ditches and bluffs

For badly affected calves consider a 100% supplement diet. Depending on calf weight, 4 kg dry matter per head will be required, some of which may need to be a high quality feed such as meal or brassica crops.

Note: There are no scientifically proven tonics for relieving Ryegrass Staggers