

Ripgut Brome Management

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Seed contamination of wool, pelt and carcasses can cause significant financial losses for the Merino industry and the entire supply chain. Of the problem plants, seed of ripgut brome (*Bromus diandrus*) has been identified as a major contaminant of lamb carcasses. The purpose of this brief is to raise awareness of how ripgut brome may affect your farming system and provide management options to produce ripgut brome free product.

“ Since being involved in this project I am more aware of the presence and impact ripgut brome has on my sheep operation. Ripgut brome contamination is going to be a major issue for farmers – both store lamb producers and finishers and cropping farmers – and meat companies in the future”.

*Simon Williamson
Glenbrook Station, Mackenzie Basin*

Ripgut brome impacts

Ripgut brome is an annual grass weed that is prevalent on dry hill and high country sites throughout parts of Canterbury, Otago and Marlborough.



Ripgut brome growing on north facing slopes.

Seeds of ripgut brome are picked up in the sheep's fleece, and contaminate wool, pelts and carcasses, particularly of lambs.



Ripgut brome seed in a carcass and wool.

This causes reduced growth rates for affected animals and may lead to the downgrading of wool and meat products. Further losses are incurred by the meat processor through reduced throughput of carcasses.

Developing a ripgut brome seed management strategy

An important step in developing a seed management strategy is to become familiar with the distribution and life-cycle of the weed and at what stages it is most vulnerable.

Identification

Ripgut brome looks like many other annual grasses before seedheads are visible. The leaves are hairy and slightly twisted. Plants often have a reddish brown tinge, and red colouration at the base. Ripgut brome seeds are large (awn up to 6 cm long) in comparison with seeds of other annual grasses, hard and sharp. They have a long awn protruding from the end of the seed. Small hooks on the edge of seeds pull seeds down into the wool and carcass.



Above: Ripgut brome mature plants and seedhead.

Life-cycle

Ripgut brome is an annual grass weed, meaning it completes its lifecycle in one year. Seedheads are formed during early summer, with seeds staying in seedhead for several months. A majority of seeds that are dispersed germinate in the first year, with a small proportion persisting in the soil seed bank for greater than one year.



Above: Ripgut brome seeds.

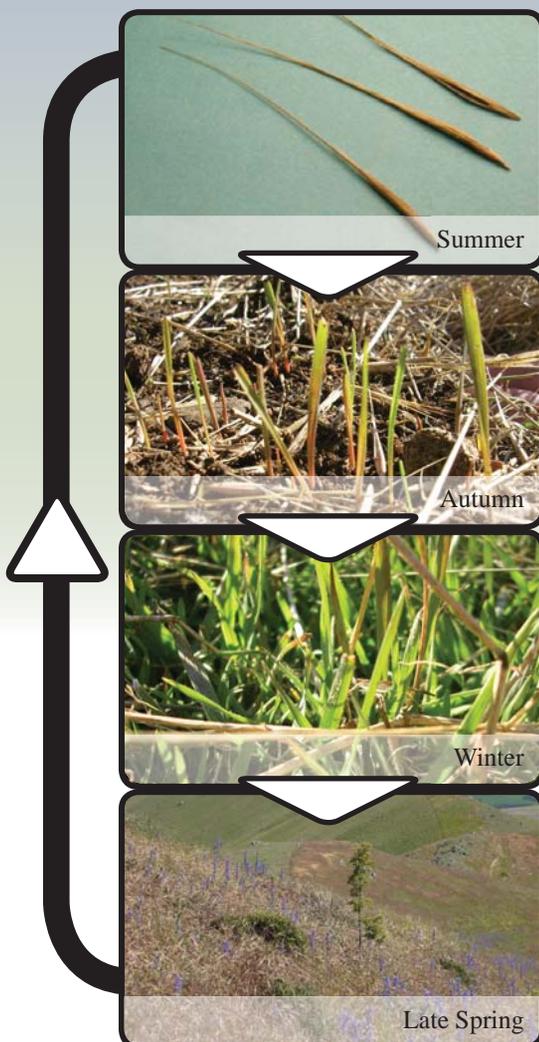
Where does it grow?

Typical of many annual grass weeds, ripgut brome is more prevalent:

- in laxly grazed sites
- on stock camps
- on steeper, sunny slopes
- in disturbed areas lacking perennial vegetation
- in low growing shrubs where it is protected from grazing



Ripgut brome is prevalent on stock camps on sunny faces. The paddock on the left was also grazed more leniently.



Lifecycle: Ripgut brome germinates in autumn, overwinters as a small plant and produces mature seed during late spring and summer

Ripgut brome seed management options

There are a range of options available to manage ripgut brome seed contamination. These include long term strategies for reducing ripgut brome weed seed set and number of ripgut brome plants in targeted paddocks, combined with short term strategies that avoid and reduce contamination in the current season but do not assist management in subsequent years. The whole farm does not have to be free of ripgut brome to manage it.

Avoiding and reducing contamination

- Identify worst paddocks on farm and avoid grazing these paddocks with ewes and lambs from November through to mid January. The worst paddocks may be stocked with less susceptible stock classes (e.g. shorn hoggets and/or cattle).
- Encourage sheep to graze in parts of paddock that are free of ripgut brome, such as shady faces. This may be achieved by salt (NaCl) applied at 50-100 kg/ha to around 5% of paddock to attract ewes and lambs. Salt applied to larger areas disperses animals too much.
- In very seedy years, shearing lambs immediately after weaning may reduce contamination of carcasses but will not completely prevent it. After shearing, graze lambs on ripgut brome free paddocks

Carcass contamination response to post weaning shearing of Merino lambs on 7 farms in Marlborough and Otago. Carcasses assessed at meat processor in October.

Shearing	Carcasses on detain rail (%)	Seeds per carcass
Shorn	33	4.6
Unshorn	41	6.6

Reducing ripgut brome in paddock

Grazing: Intensively graze localised patches of ripgut brome in early to mid spring (before seed production). This is critical as once the seedhead has set sheep will not eat ripgut brome. This may be achieved by applying coarse granular salt (50-100 kg/ha) to patches prior to grazing to encourage sheep to graze these patches intensively. Repeat applications will be necessary as some ripgut seeds stay viable in the soil for several years. Oversown pasture seed of perennial grasses and legumes may also be established more effectively with salt application (due to seed trampling), so providing enhanced competition for ripgut brome.

Seedhead response to salt application (50 kg NaCl/ha) on four farms in Otago and Marlborough. Salt applied just prior to stem elongation.

Treatment	Ripgut seedheads per m ²
Fenced off spring	408
Moderate grazing	112
Salt autumn	106
Salt spring	62



Sheep grazing intensively in areas where salt was applied



Sheep grazing has reduced ripgut brome seedhead formation (left). This is in strong contrast to the paddock on the right with lax grazing.

Herbicides: Apply herbicides to localised patches of ripgut brome (e.g. stock camps, ridges). Full rates of knockdown herbicides such as glyphosate and paraquat kill all existing vegetation and create bare ground patches that are likely to be invaded by other weeds. Spray-topping (chemical topping) with glyphosate in mid spring (at early grass seedhead emergence) may limit seedhead production and reduce seed viability. Do not use a surfactant. Temporary pasture brownout will occur. Spray-topping does not kill the plants but prevents seeds from forming. Repeat herbicide applications will be necessary because some seeds persist for more than one year in soil. Combine with oversowing of desirable species in autumn to avoid re-invasion by ripgut brome.

Ripgut brome responses to glyphosate application at two sites in Marlborough

Glyphosate rate (g active ingredient/ha)	Seedheads in December (per m ²)	Ripgut seedlings in following autumn (per m ²)
350 in October	7	54
100 in November (Spray topping)	1	63
None	38	293

Acknowledgements

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Further information

A full report of project is available at Merino Inc www.merinoinc.co.nz

Use of salt in New Zealand Pastoral Farming (2007).
Dominion Salt Limited

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Disclaimer

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