

Biosecurity Watch - Chilean Needle Grass

Jim Herdman

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CHILEAN NEEDLE grass now occupies approximately 3,700 hectares in New Zealand, in Marlborough, North Canterbury and Hawke's Bay. In the hot, dry summers in these regions, Chilean needle grass (CNG, Nassclla neesiana) can rapidly establish in the absence of competition from other pasture species that tend to die of! during this period. CNG has the potential to spread into over 15 million hectares of similarly dry land on the east coast of New Zealand and threaten agriculture and horticulture industries.

CNG infestation makes land unsuitable for sheep farming and aggressively out-competes and displaces pasture and desirable vegetation. In vineyards, CNG infests headlands, under vine areas, and inter-row spaces and surrounding hills, and is difficult to manage and control.

October, November and December are the best months to look for CNG in the vineyard, surrounding headlands and pasture. At this time of year it puts up distinctive seed spikelets of a reddish-purple colour, which fade to a light brown as the seeds mature. The seeds consist of a seed head about 10mm in length and a long twisted awn. The awn has short hairs down its length, enabling it to hook onto anything that passes. The sharp tip of the seed bead can penetrate skin and clothing.

CNG has been a problem weed for farmers in Marlborough since the initial find and identification, back in 1946. It is also causes vineyard management issues in Marlborough, particularly in the lower Awatere Valley and around Blind River, where it is well established. Landowners and government have attempted over the years to restrict and halt the spread, and in recent years the Chilean Needle Grass Action Group (CNGAG) bas been set up by landowners to champion control. I took the time to catch up with members of the group and vineyard staff who have been working hard to identify new ways to combat this successfully.

Annette Litherland works for the New Zealand Landcare Trust and supports the CNGAG, and has also been in charge of delivering the biosecurity earthquake recovery project. She has seen some successes in trials, including chemical topping, spot spraying, and direct drilling of competitive pasture species. She is also interested in how soil health and fertility can affect CNG and its ability to colonise areas. Annette is confident that new and effective management options can be found to reduce infestations in affected vineyards.

Warwick Lissaman has been part of the CNGAG for many years and has acted as its co-chairperson for much of that time. He sees one of the group's main achievements as raising awareness around CNG control and management. As a result of increased awareness, he has seen a significant shift in landowner attitudes and the normalising of best practices around CNG vector control measures. Another achievement of the CNGAG is helping to acquire funding to research the best strategies to manage CNG. Warwick says the work done so far shows that landowners can definitely reduce CNG density using an integrated land management approach. The CNGAG were also involved in the development of the rules for the Regional Pest Management Plan (RPMP) to minimise the risk of spread.



Ryan Zhiguang Liu and Matt Gallop at Awatere Hills vineyard in interrow planted out in rye grass to suppress CNG.

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The interrow direct drilled with rye grass no cultivation.

Ryan Zhiguang Liu and Matt Gallop at Awatere Hills vineyard, a **Constellation Brands New Zealand** vineyard at Blind River, have been working on several trials with the CNGAG, including hard mowing (timing-critical), spot spraying, and chemical topping trials. The trial showing the most promise for vineyards is having every second interrow sward sprayed out with three rounds of herbicide (spring to summer) and left fallow, then direct drilling without cultivation in autumn with 3okg/ha Nui rye grass. All machinery traffic (spraying rounds) can operate on the other row for a year except for a few trimming and leaf plucking rounds. The result has been very encouraging - Ryan expects low (if any) reinfestation of CNG in the sown area, and there have been no machinery traffic issues. Over time the CNG may likely return, but the density will be significantly reduced.

The herbicide Taskforce has proven to be effective, but it cannot be used in vineyards due to the active ingredient flupropanate leaving residue in grapes. Taskforce can be used in areas where grapes are not present, but reseeding (drilling if possible) with a competitive pasture species is an essential part of treatment to reduce CNG reinfestation. Glyphosate is being spot-sprayed on CNG in vineyards, and while it temporarily reduces the number/density of CNG plants and makes properties comply with the RPMP, it does not prevent the germination of CNG seed in the cleared space. Ongoing research suggests there are potentially several competitive crops or pasture that could be introduced, which will reduce the re-establishment rate of CNG after treatment.

Identifying and restricting unnecessary access to areas known to be infested is extremely important to avoid spreading CNG. This may involve fencing off areas and the use of warning signage. Ensure anyone working in these areas follows biosecurity best practices and thoroughly cleans all equipment, machinery, and vehicles before leaving. People need to clean boots and carefully check clothing for any seeds. Ensure that your staff can identify CNG or have access to reference material - so they will be able to identify it if it arrives on your site. Early detection and eradication is the best control measure so being able to identify the grass is crucial.

In Marlborough, the RPMP requires all landowners and occupiers with CNG to destroy it each year before seed-set, unless a management plan is agreed with the Marlborough District Council.

For those properties where CNG is not present, it pays to have proactive biosecurity strategies in place - to ensure it does not establish. Developing a biosecurity plan and undertaking hygiene protocols will help reduce the risk of CNG in your vineyard. Key prevention strategies to exclude CNG from your property include ensuring all vehicles and machinery coming on to your site are clean and free of plant material, seeds, and soil.

New Zealand Winegrowers (NZW) will keep members up to date with any new management recommendations as the CNG research projects progress. If you suspect you have a new infestation of Chilean needle grass in your vineyard or need information regarding CNG, you should contact the Marlborough District Council biosecurity team in the first instance. Biosecurity staff at NZW are also happy to help members with any inquiries.

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CONTACT:

New Zealand Winegrowers biosecurity team by emailing **biosecurity@nzwine.com** with any questions or requests for assistance in briefing staff or contractors.