



## Chilean Needle Grass Action Group (CNGAG)

# Spring 2018 Newsletter

### *From the chair*

Welcome to another edition of the CNG newsletter.

The CNG Action group welcomes feedback from the community on what is working for you, and what resources you need in your biosecurity programmes. What you need may be very different to someone up the river, so to speak.

The biggest message I want to get out is you are not alone; either with your battle against this pest plant or your desire to prevent it spreading into an area currently free of it.

Acknowledging this means that we can all be working towards the same goal. When we do this people take notice and get involved, plus resources flow. As a community we all must engage in biosecurity, keeping it part of our day to day actions as opposed to a compliance nuisance activity.

The CNG Action group is indebted to NZ Landcare Trust for their facilitation and support; and the MDC for ongoing resourcing through the biosecurity budget, and for the work the biosecurity team do in the education and awareness space on a wide number of pests.

Our facilitator Annette Litherland (NZLT) has put together another great resource in this newsletter edition and I encourage you to use the links contained to find further resources.



CNG can have different forms depending on its growing conditions.



Jim Herdman cleaning his ute leaving a CNG property.

This action group is here for the long haul and we welcome new members to join us. Community engagement through education and awareness; and supporting research, monitoring and ongoing control programmes are what we do. We would like your input and would love to hear from you.

The action group members bring a diverse skill set to the table, giving freely of their time and experience. Together we can make a difference.

Warwick Lissaman  
03 575 7173



## Chilean Needle Grass Review

The EQ biosecurity project contracted Agronomist Karen McCallum to review recent research on how best to control CNG and the new tools available for farmers to fight against the weed. She also interviewed farmers and contractors on their experiences. This is a must read for farmers battling CNG or those wanting to ensure they don't get CNG; and for those that get it and want to know what to do to ensure it is controlled immediately. Below is a brief overview of this excellent document and to read the full document use the link at the end of the article.

Chilean needle grass (*Nassella Neesiana*) is an invasive perennial spear grass that has been in the Marlborough region since the 1920's. Chilean needle grass (CNG) poses a large threat to the agriculture industry of New Zealand because it has the potential of spreading into 15 million hectares of dry east coast pastoral land and if this was to happen this would make this area unsuitable for sheep production.

When CNG seeds it produces cleistogene seed at the basal nodes of the flowering tiller, seed part way up the flowering tiller and in the more normal seed head. This results in a much more extended seeding season than other grasses. Cleistogene seeds are commonly the most predominant type found in the soil seed bank.

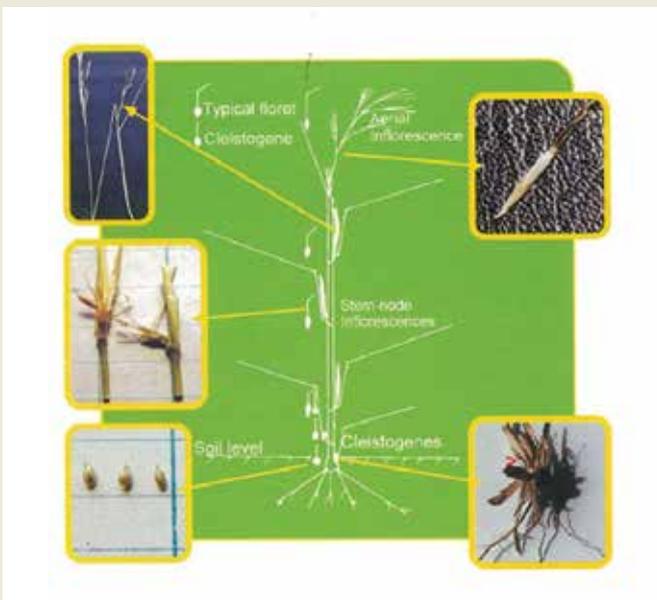


Diagram: Mike Slay

CNG seed lying on the surface is viable for less than a year, but when buried it can live up to 12 years. Strategies such as direct drilling will reduce the burying of seed compared to cultivation. Also, if aerial seeding is restricted by mowing or chemical topping (more information in document) and then reseeding by direct drilling the seedbank could be further reduced.

CNG is dispersed by multiple vectors including animals, hay, socks, machinery, and water. Dense populations will



build up where the climate favours CNG, commonly on northerly slopes but it can establish on all slopes. A CNG infested pasture has a lower carrying capacity and a substantial lower feed quality, especially over the flowering seasons. Stock just don't like to eat it!

Seeds of CNG also can burrow into the skin, causing animal welfare issues and shouldn't be grazed by sheep. It is over this flowering time when Marlborough farmers are entering the dry summer period that when not being able graze their sheep on CNG infested

pastures puts a substantial strain on the farming system. Stock must not be sold from these pastures as they will be carrying CNG seed.

CNG control methods which create soil disturbance or leave the soil bare will most likely result in the re-infestation from the CNG seedbank. This re-infestation is reduced if a good, healthy, thick new sward is established that is competitive with CNG. This involves good species choices, subdivision, fertiliser and grazing management.

Taskforce (TF), recently released in New Zealand has had varying success. CNG is killed by TF and it has approximately four months of ongoing residual activity against CNG in most of Marlborough's soils. So along with the residual activity and the 100-day grazing withholding period the timing of the TF application should be carefully considered to give maximum effect. TF also kills other pasture species such as Danthonia, Browntop, Nassella Tussock, Sweet Vernal, and Ryegrass. However, research has shown there are desirable forage plant species that are resistant to TF. Research by AgResearch has shown that when TF was applied as a foliar spray or before sowing seed these cultivars they were resilient to the Chicory, Plantain, Tall fescue, Lucerne and White clover (more information in section below). Lucerne and Red clover were checked by TF but recovered. Australian research shows that C4 grasses are also resilient.

Farmers have been using these forage species along with cocksfoot which is competitive with CNG and in combination with TF and/or glyphosphate, subdivision and fertiliser to produce pastures with much reduced numbers of CNG plants.

From the trials and research, it is clear there is no one solution to control CNG, but instead a wide range of control methods need to be adopted in an integrated weed management plan which may include changes to the farm system.

For access for the full review go to the following link.

[www.landcare.org.nz/Regional-Focus/Nelson-Office/Managing-Biosecurity-Risks-Project-Links/Managing-Biosecurity-Risks-Project](http://www.landcare.org.nz/Regional-Focus/Nelson-Office/Managing-Biosecurity-Risks-Project-Links/Managing-Biosecurity-Risks-Project)

## Update from Marlborough District Council

A significant change is occurring in the new Regional Pest Management Plan (RPMP) 2018 and it will be operative by the time the seeding season comes around in 2018. The key changes to what has been in place under the former RPMS are:

- No split of properties by terms such as 'Core' and 'Fringe';
- All occupiers with CNG are responsible for destroying it each year (before seed set) unless a Management Plan is agreed to with Council;
- There is a suite of more prescriptive Rules for activities to minimise spread risk.

Full detail on the new RPMP can be found on the Council website.

A management plan could detail what control work occurs - by who and when - and can be used by council to confirm what assistance/inputs will be put into a property by council. It also details agreed areas of the property that are affected as there is reference to this in some of the rules. This will need specific input by occupiers over what is practical and minimises the risk of spreading CNG off the property.

Given there are over 170 properties affected in Marlborough, getting management plans in place will take time.

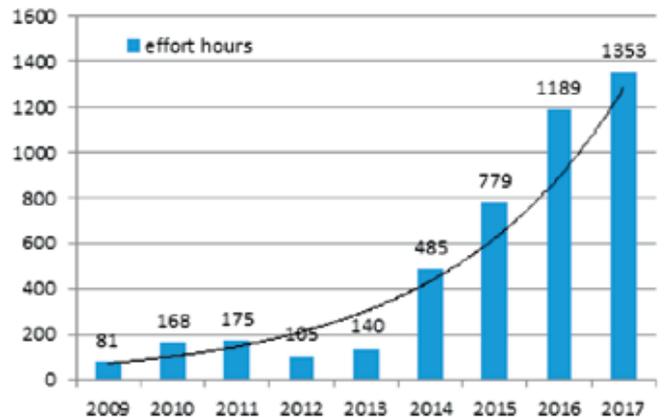
In the meantime, council ask that occupiers continue with status quo control work. If your property has had control work carried out by a council contractor last season, this will continue. As part of the council's Long Term Plan, council is investing more resources into the CNG programme. So either further properties will get contractor assistance, or more intensive control efforts will occur where they are currently working.

All of this detail can eventually be captured and agreed to in a property-specific management plan. Council staff will continue to undertake property inspections to assess control efforts with an aim to assist where they can or identify areas needing a bit more work. They will also be trying to gather a better picture of where CNG is on properties. Another focus in 2018 is to settle on a management plan for properties that have an existing heavy infestation of CNG – mostly former 'Core' properties. This is because occupiers of these properties will not be able to meet the new obligation to destroy all plants each year.

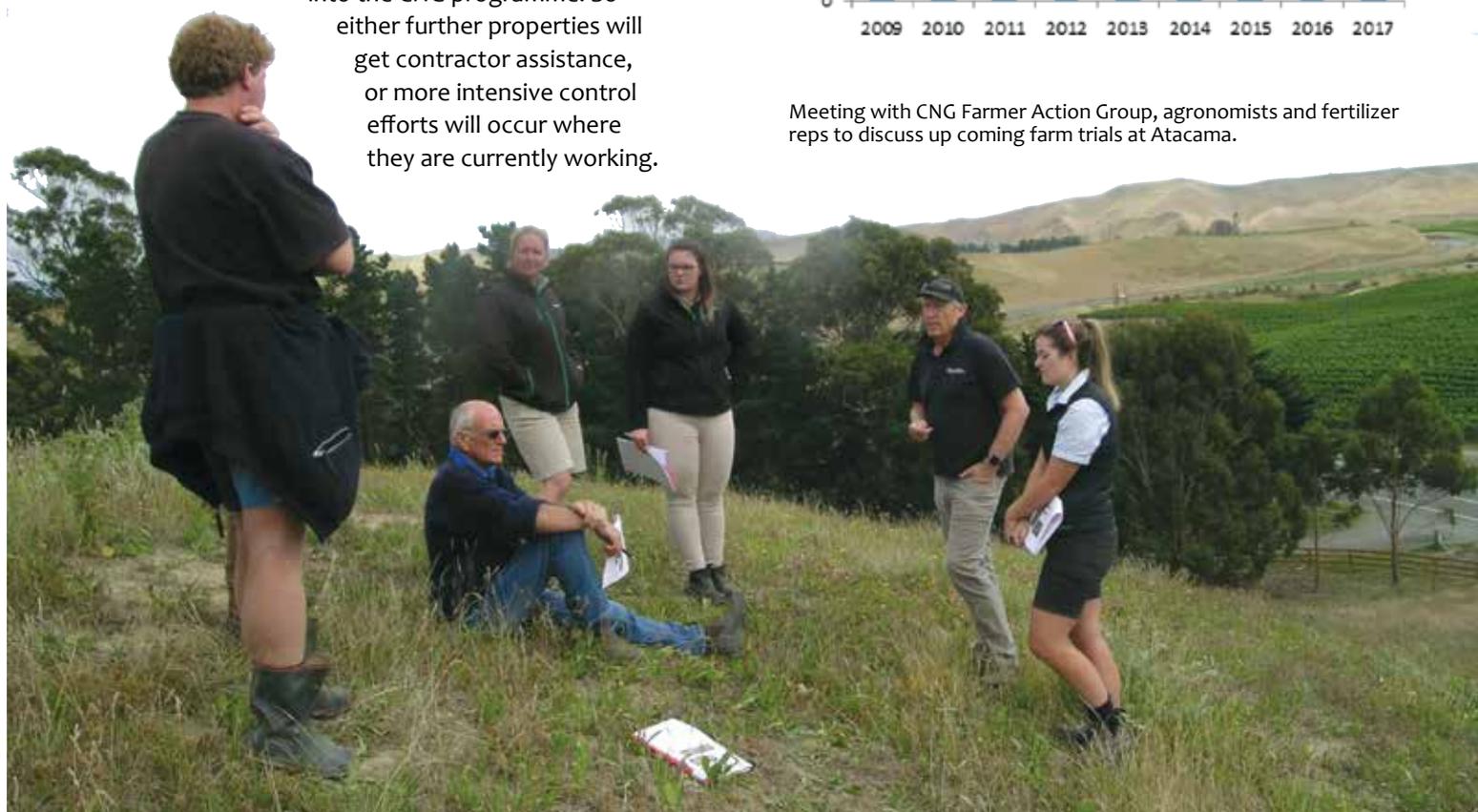
Council is continuing to support the Chilean Needle Grass Action Group (CNGAG) by funding a facilitator – the NZ Landcare Trust – and also supporting the Sustainable Farming Fund Earthquake Recovery Project.

Getting the biological agent (a damaging rust that only infects CNG) released is also very much on the radar with a release planned for as soon as the export permits come from South America, and the New Zealand release permission is renewed with the Environmental Protection Agency in New Zealand.

Hours spent by council staff controlling CNG in Marlborough



Meeting with CNG Farmer Action Group, agronomists and fertilizer reps to discuss up coming farm trials at Atacama.



## EQ Biosecurity Project: Farm trials update

This is a three-year project run by CNG Action Group and NZ Landcare Trust. It is funded by MPI Sustainable Farming Fund and co-funded by Marlborough District Council, Marlborough Research Centre, Environment Canterbury, Hawkes Bay

### Farm Trial 1.

A solid CNG paddock (pH 5.9, Olsen P8), on hard dry hill country in Blind River (Atacama) was sprayed in Feb 2017 with 3L/ha TF + Roundup and was fertilised with 750kg/ha Gypsum. Then it had a four month fallow period until May 2017 when fertiliser (200 kg/ha Superphosphate 20% Sulphur) was applied and then it was over-sowed with Megatas Cocksfoot 3 kg/ha, AR1 Alto Ryegrass 8 kg/ha, Cefalu Arrowleaf Clover 3kg/ha, Seaton Park Subclover 5kg/ha, Hercules Plantain 1.7 kg/ha and Herbivore Chicory 0.8 kg/ha. It was soil tested again in Nov 2017 (pH 5.7, Olsen P12) and 200kg Moly superphosphate/ha was applied.

Plantain established well after over-sowing and also some chicory, cocksfoot and ryegrass also established. Little legume established though it is emerging this spring. By August 2018 the sward was composed of just under 50 percent of the over-sown species. There are also a large number of flat weeds, particularly in the easier part of the paddock and there are still areas of bare ground. Plantain has self-seeded (over-sown itself!) this autumn and new plantain plants numbers are set to double on the hill throughout spring.

There are a few patches of CNG that missed the initial spraying which we have retained as a demonstration of the impact CNG has on pasture quality and how it is not grazed by stock.

Away from these areas at flowering in spring there were also a few CNG plants in under runners and gullies that were spot sprayed last flowering season.

This autumn on the same site we added some strips of Phalaris, Cocksfoot, Lucerne and Sulla and compared drilling versus over-sowing. We are tracking these now. We are trying to find species that will over-sow easily and we will test their resilience to TF.

Regional Council. We are very grateful also for in kind support from Beef + Lamb NZ, NZ Wines, Osgrow Seeds, Ravensdown, Agricom and an increasing number of Marlborough farmers.



The paddock at Atacama was solid CNG before the demonstration started.



Oct 2017. A reasonable plantain sward but there was still some open areas.



Feb 2018. Helicopter missed a few patches of CNG, these have been left grazed by stock.



Aug 2018. Plantain has reseeded in autumn and germinating now, hopefully these will fill in some of the open spaces.



### Farm Trial 2.

A solid CNG infested paddock (pH 5.6, Olsen P6) in Blind river was sprayed (3L/ha TF in Sept 2017, followed by Roundup 5l/ha in December and March) fertilised (536kg/ha superphosphate, 3T/ha lime and drilled) and then over-sown in late March with (6kg/ha Kainui Cocksfoot, 4kg/ha Seaton park Sub clover, 4kg/ha Monti sub clover, 3kg/ha Force 4lucerne, 2kg Tonic plantain. Costs to date \$1950/ha. CNG plant numbers will be monitored going forward. This property is a test to see if a single TF spray coupled with a grass to grass transition will be effective in reducing CNG plant numbers to levels that would enable spot spraying to control the CNG.



December 2017. Another solid CNG paddock, sprayed with Taskforce and glyphosate and then drilled in autumn 2018.

### Farm Trial 3.

- Two paddocks both with scattered CNG paddock (pH 5.8, Olsen P14) in Blind River, January 2018 received 4.8L/ha Glyphosate + 2.5 T/ha Ag lime and 250kg/ha sulphur 20% super.
- One paddock was direct drilled in early March with 80kg/ha Milton Oats and 20 kg/ha Moata with slug bait. Cost \$880/ha. The oats were initially fed to pre-lamb ewes behind a wire, then again with ewes with lambs at foot and now as the short rotation ryegrass kicks it is being rotated weekly.
- Another paddock was sown in early March with 2kg/ha Rape and 10.5kg/ha of M10 Lucerne. The cost \$770/ha.
- A mass germination of resident sub clover germination added to the mix. Ewes with lambs at foot were grazed on the crop but when it got too wet, R1 steers and heifers were grazed to gain LWG on the crop. There seems to be very few Lucerne plants in the stand at this point which confirms that Lucerne is not generally suited to autumn sowing.
- Crop yield 3T/ha.



July 2018. New grass paddock emerging.



July 2018. Good oats and Moata crop for pregnant sheep and later for lambing ewes.



August 2018. Cattle just finishing the rape crop.

### Farm Trial 4.

- One big paddock with a large infestation of CNG (soil test about to be done) in Blind River was sprayed with Round up 4L/ha on the cultivatable area (half) on 16 Feb 18 and again in March 18.
- In March it was drilled with Rape 4kg/ha with 250kg/ha Crop Master20 down the spout. Costs \$507/ha.
- Crop yield was 4700 kgDM/ha  
This paddock is being divided into four, with two of the paddocks will be sprayed with just Roundup and the other with TF then left for spring fallow and then plant in Barley at the end of January and graze early winter then have sprayed off ready for early spring/late winter drilling.
- More information on Farm Trial 4 about to appear on the CNG facebook page. Please follow this page for more information, discussion, questions or feedback.  
<https://www.facebook.com/chileanneedlegrass/>



End Feb 2018. Good kill of CNG.



July 2018. Bulls enjoying the rape crop. Not taking much notice of the CNG hills in background.

## Farm Trial 5

CNG is being spot sprayed in a vineyard to try and reduce plant numbers.

### Taskforce Resilient forages

When TF came into the country from Australia it laid claim to being selective for CNG and Nassella Tussock. This selectivity in Australia comes about because their resident swards are often made up of C4 (tropical) grass species and these are resilient to TF. In New Zealand in addition to killing CNG, TF also kills other C<sub>3</sub> grasses such as common needle grasses, danthonia, browntop, and sweet vernal. So when these species dominate in a sward, such as on low fertility dry hill country, the blanket use of TF without regrassing leads to large areas of bare ground which results in weed ingressions which can last for some time. As the TF wears off these bare spaces can become rapidly re-infested with CNG or Nassella Tussock.

AgResearch has been researching pasture species resilient to TF. Through their research they have published a list of resilient pasture species that can either be established after spraying with TF and after 100 mm of rain has fallen or established and then over sprayed with TF (table below). It is fortunate that many of these resilient pastures are also high performing forages suitable for a dry environment.

It is important to also note that a cropping and then regrassing regimen including cropping with multiple sprays of Roundup may also be effective at reducing CNG plant numbers if the seed bank is managed. Another alternative is pure stands of Lucerne (on better country) coupled with a grass spray.



1400 CNG plants 2016.



300 CNG plant 2017.



Oversown plantain thriving in TF treated areas.

### Pasture species compatible with flupropanate herbicide (Shona Lamoureaux et al., 2018)

Common name	Cultivar	Safe to sow after flupropanate application and 100 mm rainfall?	Safe to overspray with flupropanate once established?
Chicory	Puna II	Yes	Yes
Cocksfoot	Tekapo	Yes	No
Perennial ryegrass	Alto (AR37)	Yes	No
Perennial ryegrass	Sampson (AR37)	Yes	No
Perennial ryegrass	Nui	Yes	No
Lucerne	Torlesse	Yes	No?
Narrow-leaved plantain	Tonic	Yes	Yes
Tall fescue	Quantum II	Yes	Yes
Red clover	Relish	No	No?
White clover	Huia	Yes	Yes



Applying fertilizer to the paddock before sowing Farm Trial 2.



## Surveys

### Biosecurity plan and Nassella tussock surveys

Farm biosecurity is becoming increasingly important in modern farming. We, in the EQ Biosecurity project, are very keen that our actions are driven in a way that farmers want. As part of the EQ biosecurity project we intend to work with farmers to come up with a framework for a sheep and beef farmer biosecurity plan that includes Chilean Needle Grass, Nassella Tussock and animal diseases such as Foot and Mouth and M. Bovis. This survey is the first step in finding out what farmers want in a biosecurity plan and how they want it delivered and how we can use this to help EQ affected farmers.

If you haven't done so already, please take the time to fill in this survey electronically at this link

#### Biosecurity Plans Survey:

<https://www.surveymonkey.com/r/87FQXS7>

or contact Annette on 027 724 4445 for a hard copy .

To support the SFF Nassella Tussock biocontrol SFF application and to direct the focus for Nassella programme for the EQ Biosecurity project a farmer survey was launched.

If you have nassella tussock and haven't filled it in yet we would appreciate it if you could take the time to do so. The Nassella tussock survey link can be found at

#### Nassella Tussock Survey:

<https://www.surveymonkey.com/r/KY93GCC>

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## Snippets

- Seddon school is going to be learning about CNG in October
- Drones with cameras and an operator will be tested in September to find CNG, spray it and return later to reseed sprayed patches.
- Dogs have successfully been trialled by ECAN on high density CNG infestations and also successfully found scattered CNG in Marlborough in the seeding season. Dogs have also identified CNG in the non-seeding season.
- The EQ biosecurity project is looking for country men and woman to act in three small videos to highlight the importance of having biosecurity conversations with people coming on to the farm. Should be a lot of fun! Contact Annette on 027 724 4445 if you would like to give it a crack.
- EQ Biosecurity programme will be offering some farmers a biosecurity planning workshop using information collected in the biosecurity survey (see below). You can indicate your interest in being part of this workshop in the biosecurity survey.

## Sniffer Dogs In Action

In early 2017, Fiona Thomson, a plant research scientist at Landcare Research, contacted Environment Canterbury via the CNG Facebook page to discuss an idea that she had for using detection dogs to search for CNG. Dogs have successfully searched for Velvetleaf, and Fiona wanted to set up a feasibility study for using her dog to search for CNG. We took this proposal to the CNG Management Group, who agreed to use \$15k funding from their research budget (\$50k annually provided by MPI) to fund the feasibility study.

Fiona teamed up with Geoff Bowers, owner of Kuri dog centre, to conduct the study, which finished in February this year. On completion, Fiona was satisfied that she had met the project aims and both her and Geoff were confident that the dogs could be used to successfully identify CNG in the field.

Since the conclusion of the project, we have employed Geoff and Fiona as a contractor on a couple of occasions to undertake searches on land with recently identified CNG infestations. The dogs have demonstrated an incredible ability to locate CNG including plants that are very small and isolated. This certainly appears to be a viable tool for search programmes and also for operation programmes especially where plants are in low density.

Fiona and Geoff are also training their dogs on Velvetleaf detection and are keen to identify which other cryptic plant species the Council could benefit from having scent detection dogs trained on.

One major bonus of the project has been the media attention that the dogs have attracted. They have been far more successful than any other communications material we have released for raising awareness of CNG.

We have now discussed having a scent detection dog at some A&P show stands in the future, just for an hour or two, to help attract people to the site.



## Review of online CNG Resources for property owners

The following information can be found on the link below.

[www.landcare.org.nz/Regional-Focus/Nelson-Office/Managing-Biosecurity-Risks-Project-Links/Managing-Biosecurity-Risks-Project](http://www.landcare.org.nz/Regional-Focus/Nelson-Office/Managing-Biosecurity-Risks-Project-Links/Managing-Biosecurity-Risks-Project)

### Farmer Health and Safety and Biosecurity Induction sheets

These sheets are designed as a prompt to the conversations you should be having before, when and after people or stock come on to the farm.

### A review of the latest scientific literature, reports and farmer practices by Karen McCallum 2018

This review was done for the Marlborough CNG Action group as part of the SFF Earthquake biosecurity project. This is a document that describes the best farmer methods being used to control CNG in Marlborough and is an update research completed since the review of Slay, (2002) and Bourdot, (2010).

### Last year's CNG newsletter

### Farmer case study "Farming your way out CNG"

#### CNG Ute guide

This gives a good background on CNG, its distribution, how it is spread and an excellent run down on how it can be identified. This information is presented as a pdf file for the readers or for the visual learner as a full length 19-minute video with excellent interviews with farmers and step by step visual identification by an expert. Or a shortened version, for those with limited attention span, on identification.

(long version 19 mins)

<https://www.youtube.com/watch?v=LhEvhg3zlxo>

(short version)

<https://www.youtube.com/watch?v=qwCxaKQdgek>

#### Nassella Tussock Information

Also Nassella tussock Ute guide, latest information from Nassella workshop.

## Videos on YouTube

If videos are more your thing!

### CNG Action Group Case Study - Tim Struthers

Tim, who has both a sheep and beef farm plus a vineyard, talks about how he has controlled CNG, his cropping programme using Taskforce, and how this has improved his farm performance. (4min 30 sec)

<https://www.youtube.com/watch?v=fXxDnc57Vsc>

### CNG Action Group Case Study - Simon Harvey

Simon, hill country farmer up the Medway Valley, talking about how to prevent CNG and other biosecurity risks getting on to the property. (3min 30 sec)

<https://www.youtube.com/watch?v=b4yEcj8UNY4>

### On farm biosecurity

How to prevent spreading or getting CNG and other biosecurity risks. A good short YouTube video that goes how to minimise CNG biosecurity risks (3min 30 sec).

<https://www.youtube.com/watch?v=tKjajQ5Yo1A>



### For further information about the CNG Action Group contact:

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### Acknowledgments

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