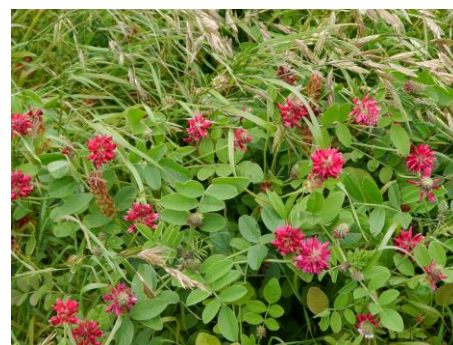


Newsletter No. 8

June 2018



**NORTHLAND'S
DIVERSIFIED FORAGES**

What has happened this last autumn?

The answer is - some very positive results but also some disappointing results!

Summary of Points

- Seed quality can still be an issue if you are not careful!
The overall quality of the seed used for our plot sowings and some of our paddock-sowings was high, at 80% laboratory germination across 23 lines of seed.

The germination across the clovers and lotus was 84%. When the very low germination for arrowleaf clover is removed from the calculations, the remaining 18 lines of legume seed is at 87% germination. Quite a satisfactory result. However, there was one line of grass, being Savvy cocksfoot that was very low at just 44%: almost definitely a problem with storage of this seed that had been coated, plus its age is unknown.
- Lucerne and clover samples were analysed in June. This to give us answers as to why the lucerne at Roger Gillatt's had almost totally collapsed during April & May. Various soil-borne fungi were causing severe rotting of the crown of the lucerne plants plus rotting of the root systems for both lucerne and white clover plants. Fortunately, virtually all the lucerne stands are recovering and regrowing well as in mid-June.
- Very positive results from the whole-paddock sowings from autumn 2017. 12 sites (paddocks) between Dargaville and Kaitaia averaged
 - 16.1 tonnes dry matter per hectare for the 12 months: the range was a low of
 - 12.2 tonne up to a high of 20.7 t/ha

The annual clovers within these whole-paddock sowings gave a very strong contribution to the pasture production up to Christmas, with an average of 4.7 tonne DM/ha across the 12 sites. Early growth fuelled by these annual clovers, in what was a very difficult season, was very positive with 74 kg DM/ha/day average for Sept-Oct.

Legume & Grass Seed Laboratory Germination Result

For seed used in various plot trials within Northland.

Seeds were incubated for 21 days.

Species	Cultivar	Germination
Balansa Clover	Viper	67%
Balansa Clover	Taipan	82%
Persian Clover	Resal	95%
Persian Clover	Lusa	97%
Persian Clover	Lightning	95%
Persian Clover	Turbo	91%
Arrowleaf Clover	Arrotas	22%
Berseem Clover	Elite II	92%
Crimson Clover	?	95%
Alsike Clover	Hytas	84%
Spineless Burr Medic	?	61%
Red Clover	Rubitas	96%
Red Clover	Ceibo	87%
Red Clover	Relish	68%
Caucasian Clover Hybrid	Aberlasting	97%
Lotus Major	Trojan	100%
Lotus Major	E Tannin	80%
Perennial Ryegrass	Rely	94%
White Clover	Legacy	91%
White Clover	Mainstay	91%
Tall Fescue	Hummer	92%
Cocksfoot	Savvy	44%
Lucerne	SF4	94%

Comment

- Although the presence of “hard” seed was not measured, it has probably played a large part in lowering these germination results for the balansa and arrowleaf clovers.
- Pleasing to see the 90+ germination percentage for the range of Persian clovers, along with the berseem, crimson annual clovers plus the white clovers, Rely perennial ryegrass and Hummer tall fescue.
- The Savvy cocksfoot is showing a disappointingly very low germination! This seed was purchased in Kaitaia this autumn, it was coated and age is unknown, but could be 3-4 years old! This disastrous germination result is a reflection, in my opinion, of seed in the Far North not being kept in proper storage facilities, especially if it has been coated seed. The problem has been the storage of the seed, possibly the age of the seed too, especially with it being coated, rather than the fact that it was cocksfoot!

Impact on clover germination from age/storage of seed: The photo below shows the huge difference in germination between lines of different clovers with different ages and storage conditions.

- Legacy white clover showing nil germination
- Persian and berseem Elite II 2017 seed showing very high germination result
- Berseem uncertified coated seed (at least 18 months old) showing a very poor result.

To be clear, the very poor result from the Legacy white clover is not a problem with the seed itself: 100% of the problem was to do with the very poor storage of the seed on farm for the 12-month period leading up to April 2018. It's a case of "use it or lose it".



Poor clover growth in April?

Our monitoring of the lucerne at Roger & Barbara Gillatt's continues. The lucerne growth in two paddocks during April to early May was a disappointing 24 kg DM/ha/day. These lucerne paddocks were looking very poor, with most of the top growth either dead or looking very sick. Plant samples sent to Plant Diagnostics Ltd, Christchurch, showed symptoms of severe crown rot, plus lesions and rotting of the root system. The white clover plant sent as a comparison to the lucerne showed similar lesions and browning of its root system. The cause of this crown and root rotting were various soil-borne fungus pathogens, namely a range of fungi. The presence of one of these fungi, *Pythium*, is meant to indicate the presence of excess soil moisture, through rain, irrigation or poor drainage!

The lucerne being successfully grown by the Gillatts, is on free-draining sandy soils with superb natural drainage. The one paddock closest to the coast, would be amongst the most free-draining paddocks within Northland or anywhere else in New Zealand.

Fortunately this lucerne has been showing new growth from the crown of the plant on virtually all plants. Poor drainage is not an issue here! This should mean that although in the short term, there has been a major reduction in plant growth due to those soil-borne fungi, these plants will survive: none have actually died! They are "coming through" this fungus attack. For many other Northland farmers who have seen very poor clover growth during this last April, I strongly suspect that the major cause has been soil-borne fungus attacks, coupled with what has been an exceptionally wet summer and autumn.

Positive Results – Paddock-Scale sowings for 2017/18

Across the range of sites, 12 paddocks and a range of soil types, the whole-paddock sowings of a low ryegrass sowing rate of 5 kg/ha and a high rate of clovers of up to 20 kg/ha, has given very strong production results. See the page: Summary Paddock Scale Sowings 2017/18 for the detailed results.

Highlights are:

- An excellent 12-month production of high quality feed for the Waiharara site, averaging 19.3 tonne of dry matter/hectare for two paddocks.
- An average of 16.1 tonne DM/ha for 12 months across 12 paddocks: the range being from a low of 12.2 tonne up to a high of 20.7 tonne DM/ha.
- The annual clover production across all 12 paddocks averaged 4.7 tonne DM/ha from between sowing in autumn 2017 up to early-mid December.
- This annual clover production will mean an increase in nitrogen in the soil, up to 130-140 kg nitrogen per hectare (worth around \$175/ha). Critically, this nitrogen will become available more slowly, more steadily than from 3 or 4 applications of bagged nitrogen.
- It is not just the high-quality feed being produced by these annual clovers that is important, but also the extra feed being grown earlier in the season, e.g. daily growth rates averaged:
 - 74 kg/ha/day for Sept/Oct and
 - 73 kg/ha/day for Oct/Nov.

This extra feed in Sept/Oct is worth its “weight in gold”, especially if you are on a soil type that allows a high utilisation of pasture at this time of year. These are impressive growth rates and it doesn’t take much to remember how difficult Sept-Oct was last year.

Autumn 2018 Clover Germination – Plot Site Results

To date, from four of our legume plot sites, we have a variable field germination.

Results from NARF are moderate:

165 clover seedlings per metre square for our monoculture clovers and a more acceptable 242 seedlings/m² for our clover and grass mixes plots.

At our new site in Ruakaka the germination has been excellent: 389 and 528 clover seedlings/m² for the annual legumes as monoculture and mixes of clover plus ryegrass respectively. These Ruakaka results are impressive.

The Far North site at Awanui has had a very poor annual clover seedling establishment. This from a very early sowing date of 16 March. While there was a very good initial germination within 7-10 days, with two distinct dry periods and high temperatures in April, death occurred in the clover seedlings.

With soil surface temperatures of 32-39°C many seedlings died through April: e.g. one plot which had an excellent 320 seedlings/m² at day 10 after sowing, had just 32 seedlings/m² by early May. This highlights the danger of sowing early, obtaining good germination and then having field conditions placing the seedlings under huge physical stress – enough stress to cause a high death rate!

One site shows the problem of too much rain and water “sitting” on top of the plots! The problem areas have a much reduced clover population (35% reduction in clover presence) and a much higher weed population (65% increase in weed presence). Here, surplus rain water coupled with poor drainage has caused:

- 23% of plots are moderately to severely compromised because of rain water sitting over the plots and not draining away

- 64% of plots under no negative impact because of sitting water
- All plots are very similar to the surrounding area of the paddock, being very wet, very soft.

Action

An open drain was dug on 8 June that did and will continue to allow much of this sitting water in some of the worst affected plots, to drain away and so, reduce this problem.



Ministry for Primary Industries
Manatū Ahu Matua



Hine Rangi Trust

**T.R ELLETT AGRICULTURAL
RESEARCH TRUST**



Summary – Paddock-Scale Sowings 2017/18							
Location	Paddock Pasture	Total Daily Growth Kg DM/ha/day		Annual Clover Production from sowing up to early Dec 2017 Kg DM/ha	Annual Clover presence by %		Total Yield for 12 months from Sowing Kg DM/ha
		Sept-Oct	Oct-Nov		Oct	Nov	
Waiharara Low Rye & High Clover	<i>Italian – Sown 25th May</i>	66	65	3,840	24	38	18,000
	<i>Perennial – Sown 25th May</i>	74	108	6,012	54	46	20,700
Awanui Low Rye & High Clover	<i>Perennial – Sown 8th May</i>	77	34	6,043	73	81	14,800
	<i>Italian – Sown 8th May</i>	74	63	10,281	72	100	15,400
	<i>Flats – Sown 9th May</i>	115	137	7,119	39	49	18,700
Moerewa Low Rye & High Clover	<i>Pdk 1 – Sown 8th April</i>	84	63	4,310	88	29	13,834
	<i>Pdk 3 – Sown 8th April</i>	73	77	757	18	0	15,186
Kawakawa Low Rye & High Clover	<i>Perennial – Sown 8th May</i>	58	44	2,245	41	28	12,266
	<i>Italian – Sown 8th May</i>	73	55	1,197	5	19	13,800
Te Kopuru Lucerne Pastures	<i>11 Years old</i>	56	68	2,585	19	40	15,009
	<i>3 Years old</i>	65	68	4,450	40	54	17,903
Te Kopuru	<i>Tall Fescue Diversified Pasture Sown 10 April</i>	75	92	5,893	44	48	17,200

- Te Kopuru Diversified tall fescue and Te Kopuru lucerne data in the annual clover column is total legume present