



**NORTHLAND'S
DIVERSIFIED FORAGES**

A difficult winter?

Pasture growth rates being collected as part of the project, have been very variable for the June to end of August period.

But for most farmers, especially those on heavy clays or podzols, the dry underfoot conditions have been very welcomed: Up to mid-August anyway!

Summary Points

- Growth rates during this last July and August for plots sown into various mixes in autumn 2018, have been slow to very slow! Across three sites:

Ryegrass treatment	Averaged	20 kg DM/ha/day
Tall fescue	Averaged	21 kg DM/ha/day
Cocksfoot	Averaged	24 kg DM/ha/day

There had been no nitrogen applied to these plots.

- In contrast, the growth rates from some of our diversified pasture mixes were strong; e.g. 38 kg DM/ha/day for two paddocks at Te Kopuru
- The perennial grasses have staged a major “come back” at all sites, but especially at NARF, Dargaville. The grasses at NARF that averaged just a 3% presence back in January, February and March, now are at:
 - 64% for perennial ryegrass
 - 80% for tall fescue
 - 78% for cocksfoot.
- A lack of grass density is the probable cause of the poor grass and clover growth in our plots during this winter. This caused by the strong annual clover growth in August to November, but especially the tremendous surge of red clover growth in the summer and early-autumn.

“Mixes” Growth Rates Aug/Sept 2019

In autumn 2018, various mixes were sown at four sites throughout Northland. We are continuing to collect growth rates, composition and soil fertility data from 3 out of 4 sites. Current growth rates, during July and August of this year, have been pretty slow!

Growth Rates from Mixes in Aug/Sept 2019 Kg DM/ha/day			
	Awanui 17 June to 15 Aug	NARF, Dargaville 15 July to 20 Aug	Te Kopuru 11 July to 11 Sept
Ryegrass treatments	25	19	15
Tall Fescue treatments	23	22	17
Cocksfoot treatments	32	19	20
Average for perennial grasses	27	20	17

Presence of Grasses – Control Plots As at August/September harvest				
		Awanui 17 June to 15 Aug	NARF, Dargaville 15 July to 20 Aug	Te Kopuru 11 July to 11 Sept
Ryegrass	%	81	64	70
Tall Fescue	%	78	80	87
Cocksfoot	%	85	78	93
White clover	%	9	11	4
Red clover	%	7	14	7

The mixes were sown in autumn 2018. Perennial ryegrass @ 10 kg/ha, tall fescue @ 15 kg/ha and cocksfoot @ 2.2 kg/ha of viable seed.

All treatments had 3 kg/ha of white clover, 4 kg of red clover and either balansa, Persian or berseem annual clover added.

Comments on Growth Rates

During the 50-60 days covering slightly different periods for the three locations, but generally July and August of this year, the growth rates have been pretty slow!

Te Kopuru and NARF with low growth rates across the grasses averaging 17 & 20 kg DM/ha/day respectively. For these two sites, there is limited difference between the grasses except cocksfoot being stronger at Te Kopuru. This growth advantage from the cocksfoot treatments is also showing up at the Awanui site.



26.6.19

Top:

Yearling bulls grazing a diversified pasture which is very strong in annual clovers – first grazed in late-June 2019

Bottom:

The same paddock as above, on 26 July being grazed for the second time. Growth of the annual clovers, berseem & Persian, had been very strong through July.

Composition

During the autumn, we were concerned about the very low presence of all the grasses in most/all plots, but especially at NARF. We were very interested in seeing if all the grasses “made a come-back” from the dominance that they had to face, from the annual clovers in the August to November period, and then from superb red clover growth in the December to April period. The table below shows the almost total lack of presence from the grasses in January to March, and how well they have “bounced back” by 20 August.

NARF – Plant Material present at Harvest - %		
	January to March inclusive	20 August 2019
Ryegrass	2	64
Tall Fescue	6	80
Cocksfoot	2	78
White clover	1	11
Red clover	89	14

While the presence of these grasses in mid-August is encouraging, the daily growth rates will have been held back by the lack of density: This density is one piece of data we are not collecting, i.e. the population in terms of plants or tillers of these grasses currently on hand.

Note the advantage for the tall fescue and the cocksfoot for plant material present in mid-August: Cocksfoot and tall fescue averaging 79% compared to 64% for the perennial ryegrass.

Whole-Paddock Growth Rates

In comparison to the slow growth from various treatments in the plot trials, some of the growth rates from whole-paddock sowings have been far stronger, e.g. two paddocks at Te Kopuru averaged 38 kg DM/ha/day for July, August and early-September: Comparing favourably to the plots at just 17 kg/ha/day.



30.8.19

Two-year old bulls grazing another diversified pasture, sown April 2019, also currently dominated by annual clovers, berseem & Persian

Establishment of Annuals Clovers – Monoculture Sowings 2019
Awanui Site – Sown 17 May 2019

Species	Sowing Rate Kg/ha	Seedling Emergence Count/m ² @ 50 days	Germination %	Growth from sowing up to 19 Aug of sown species Kg DM/ha/day	Negative impact of Soil-borne root pathogens
Balansa	6	751	89	8	Major
Sub clover	20	126	42	Nil	Major
Berseem	20	419	64	19	Medium – variable
Persian	8	391	40	12	Minor

Soil-borne fungus with their “attacks” on root systems, had a very minor impact on the perennials, being white and red clover.



20.9.19

The very strong Persian and berseem clovers being grazed for the third time since the April 2019 sowing. While some plantain is now showing, whether the cocksfoot survives being dominated by the annual clovers, remains to be seen.



21.9.19
Mixes sown
April 2018
showing
strong grass
& red clover
growth this
September



21.9.19

The Control plots sown April 2017 at Awanui just being harvested. Without being supplemented with nitrogen, the cocksfoot has shown superior growth during August & September. While the perennial ryegrass plots appear to be the most dense for grass content, part of this density is kikuyu "re-invading".



21.9.19

A strip of volunteer crimson clover from self-sown seed this time last year: Flowering strongly by late-September means it could be a very useful cover crop for direct drilling of various crops in mid-Spring

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