

Northland Pastoral Extension: Popular Summary

Pasture Species Paspalum



Summary of Key Findings

Research work on Paspalum in Northland from the 1970s to the 1990s found:

- Total annual pasture production can be greater by up to 10% from pastures with a good content of Paspalum present, compared with those that have no Paspalum.
- Paspalum pastures produce more feed during summer than rye-based pastures, by up to 40%.
- Paspalum effectively grows no feed during winter and early spring (growth rates just 3–4 kg DM/ha/day, June–August).
- Over-sowing has advantages over drilling during establishment – Paspalum seed is small and light. Any drilling has to be **very** shallow.
- Drilling Paspalum seed into unsprayed pastures is a complete waste of time.
- To maintain Paspalum in pastures to achieve good summer production from Paspalum requires hard grazing (i.e. to low residuals) September to October, which results in **low**, to **very low**, animal production.
- The **gain** from improved summer production by deliberately maintaining Paspalum in rye/white-clover pastures may not balance the very large **loss** in pasture growth over winter and spring.

As stocking rates increase, there is a decrease in Paspalum cover and production. Performance of Paspalum is affected by grazing management.

Paspalum as a Pasture Species

Paspalum was a common Northland pasture component up to the 1960s and 1970s, when its presence declined. Causes of this decline were considered to include:

- Competition from ryegrass induced by changes in grazing management and fertiliser use.
- Black beetle attack.
- Overgrazing during the summer droughts of the early 1970s.

Paspalum

Interest in Paspalum as a pasture species revived as a result of:

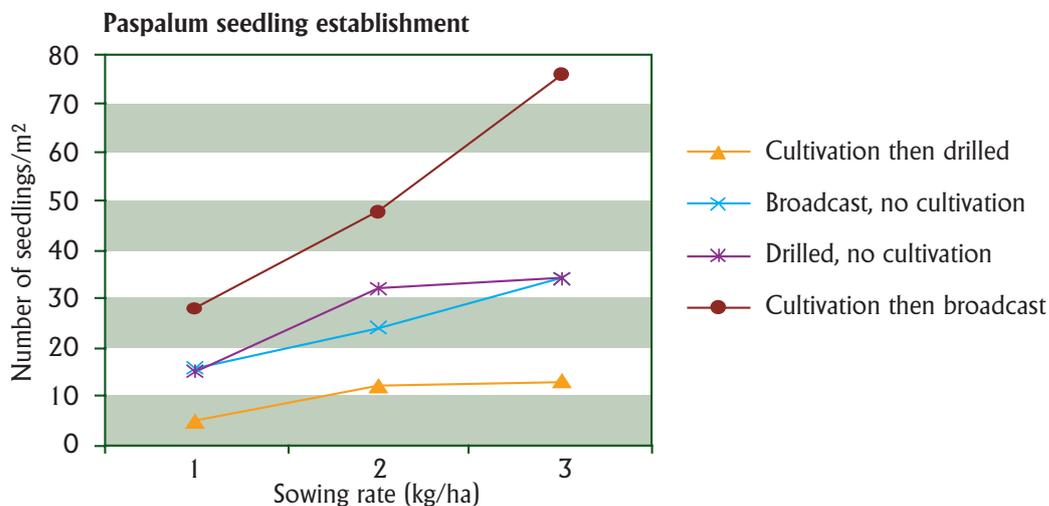
- Release of a locally improved cultivar, Raki Paspalum.
- Requirement for high-quality herbage late spring and summer.
- Summer Paspalum production higher than rye-based pastures.
- High levels of dairy production achieved on Paspalum pastures in the Waikato.

Establishment of Paspalum

Paspalum seed is small and light. Broadcasting has advantages over drilling; any drilling has to be very shallow.

Seed **must** be established in pasture previously sprayed with herbicide. Drilling or broadcasting Paspalum seed into unsprayed residual pasture is totally unsuccessful.

- Best establishment of Paspalum from high rates of seed broadcast following cultivation – 10 kg/ha, giving 76 seedlings/m².
- Drilling following cultivation gives the poorest result – 5 kg/ha **and** 10 kg/ha of seed giving just 13 seedlings/m².



Paspalum establishment is best following October sowing. However, seedlings seen from early November onwards indicated **some** autumn-sown seed withstood over-wintering and remained viable.

Pasture Production

Kaikohe trials in the late 1970s investigated Paspalum production.

- First year – pure Paspalum sward yielded just 75% of that of mixed swards with, or without, Paspalum.
- Second year – pure Paspalum sward yielded same as mixed swards with Paspalum, but produced 24% more than mixed swards without Paspalum.

Paspalum could be considered as a specialist perennial forage species – total DM production of pure sward compares favourably with mixed swards.

Comparison between Paspalum and other grasses in mowing trials needs to be treated with caution. Mowing trials 'inflate' Paspalum results – Paspalum yields from a grazing trial were only **half** those from a comparative mowing-only trial.



Annual Dry Matter Production and Species Composition (1976–1977, 1977–1978)

	DM (t/ha/yr)		% Paspalum		% Rye		% Clover		% Other	
	76–77	77–78	76–77	77–78	76–77	77–78	76–77	77–78	76–77	77–78
Pure Paspalum	9.4	10.3	93	98	0	0	6	1	1	1
Mixed, with Paspalum	12.3	10.1	42	52	32	24	24	6	2	18
Mixed, no Paspalum	12.6	8.3	0	0	69	50	28	19	3	31

Seasonal production

Presence of Paspalum in mixed pastures, or on its own, increases early and mid-summer production.

Most critical period for supply of pasture Aug–Sept; however, Paspalum has extremely low growth at this time of year.

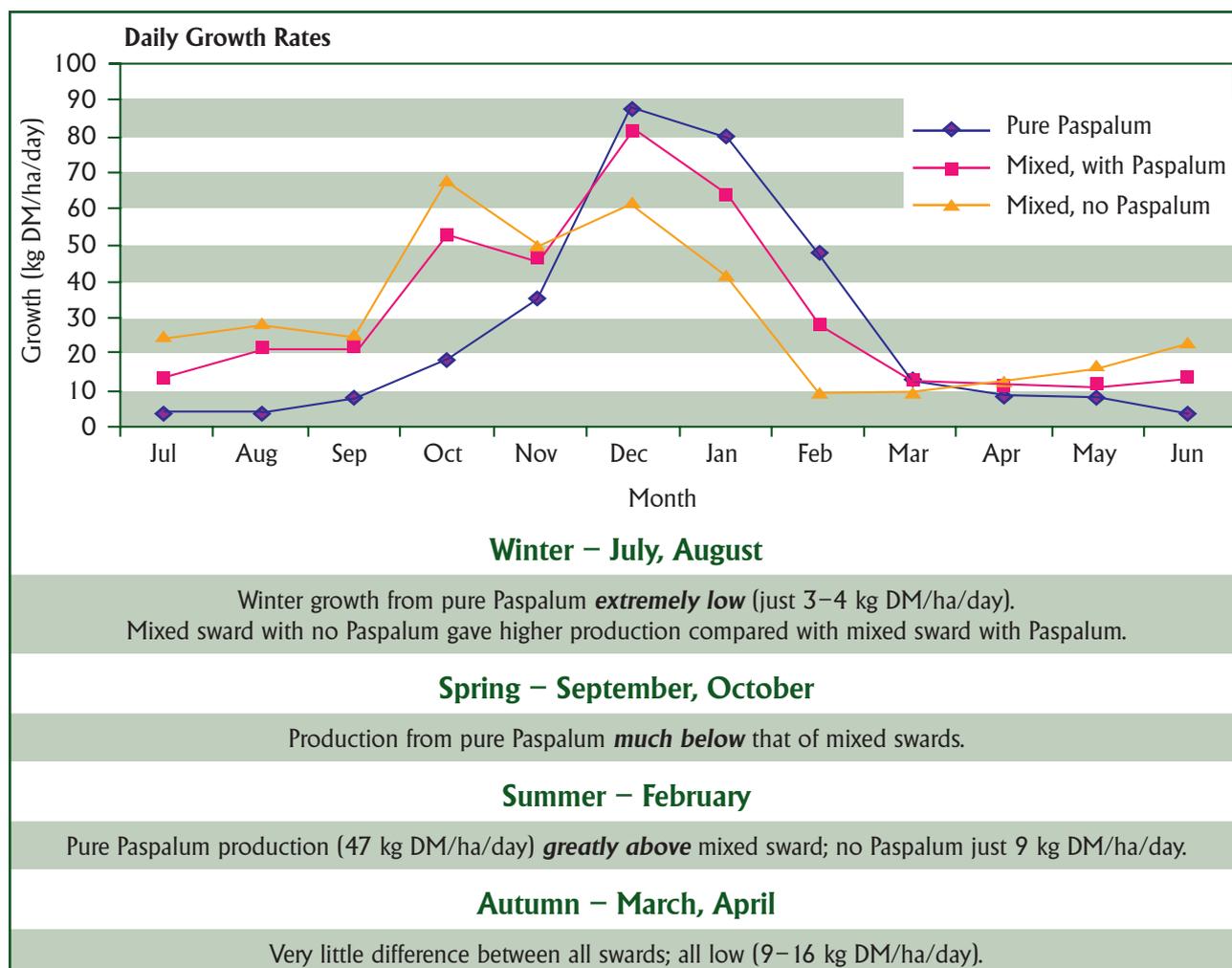
Presence of Paspalum in sward in late winter and early spring, reduces overall pasture growth.

Presence of Paspalum in rye-based pasture reduces daily growth rates by 20%.

To maintain presence of Paspalum requires hard grazing Sept–Oct; the problem is that this practice results in low to very low animal production at that time.

Seasonal growth of pure Paspalum swards, ryegrass/white-clover swards with or without Paspalum (called **mixed swards**) was measured over 2 years.

Restriction in late winter, early spring pasture growth also shown due to presence of other summer-growing, subtropical pasture plants.



Paspalum

Another establishment trial showed Paspalum contribution very low (only 11% of annual production) for a 4-year period. With Paspalum establishment in November, followed by ryegrass/clover establishment the following autumn, the contribution of other grass species (self-sown sweet vernal, poa, fog) was very high (making up 20–40% of annual production). Monitoring of pastures at Dargaville over a 12-year period showed Paspalum providing 40% of an annual total average yield of 17,160 kg DM/ha.

Feed Quality

Paspalum, as with other subtropical species, has a lower feed value than most temperate pasture species (especially legumes, but also ryegrass).

During summer, because of the greater pasture growth rate of Paspalum, total yield of digestible feed greater (by up to 40%) from Paspalum/rye/clover mixed pasture compared to rye/clover-only pasture.

Feed Quality Measurements – Northland

	Crude protein (% DM)	Soluble sugars (% DM)	NDF* (% DM)	Digestibility (% DM)
Ryegrass	24.2	12.1	40.3	81.7
Kikuyu	17.5	4.3	58.8	65.4
Paspalum	15.7	8.8	58.2	58.3

*NDF – Neutral Detergent Fibre – a measure of a plant's total cell wall content.



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A project coordinated by the Northland Pastoral Farming Development Group
The unabridged version of **Research Stocktake – Pasture Species – Paspalum** is available on the
Enterprise Northland website www.enterprisenorthland.co.nz