



**Lincoln  
University**  
*Te Whare Wānaka o Aoraki*  
AOTEAROA • NEW ZEALAND



# Perennial lupin establishment and yield when sown at five different rates at Glenmore Station, Lake Tekapo.

**D.J. Moot & K.M. Pollock**



New Zealand's specialist land-based university

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Note:

This presentation was made on 6 Nov 2014 in Alexandra at the New Zealand Grassland Association Annual Conference.

It is associated with the following scientific publication:

Moot, D. J. and Pollock, K. M. 2014. [Perennial lupin establishment and yield when sown at five different rates at Glenmore Station, Lake Tekapo](#). *Proceedings of the New Zealand Grassland Association*, **76**, 53-59.

# NZMerino forage projects

Lake Heron

Sawdon

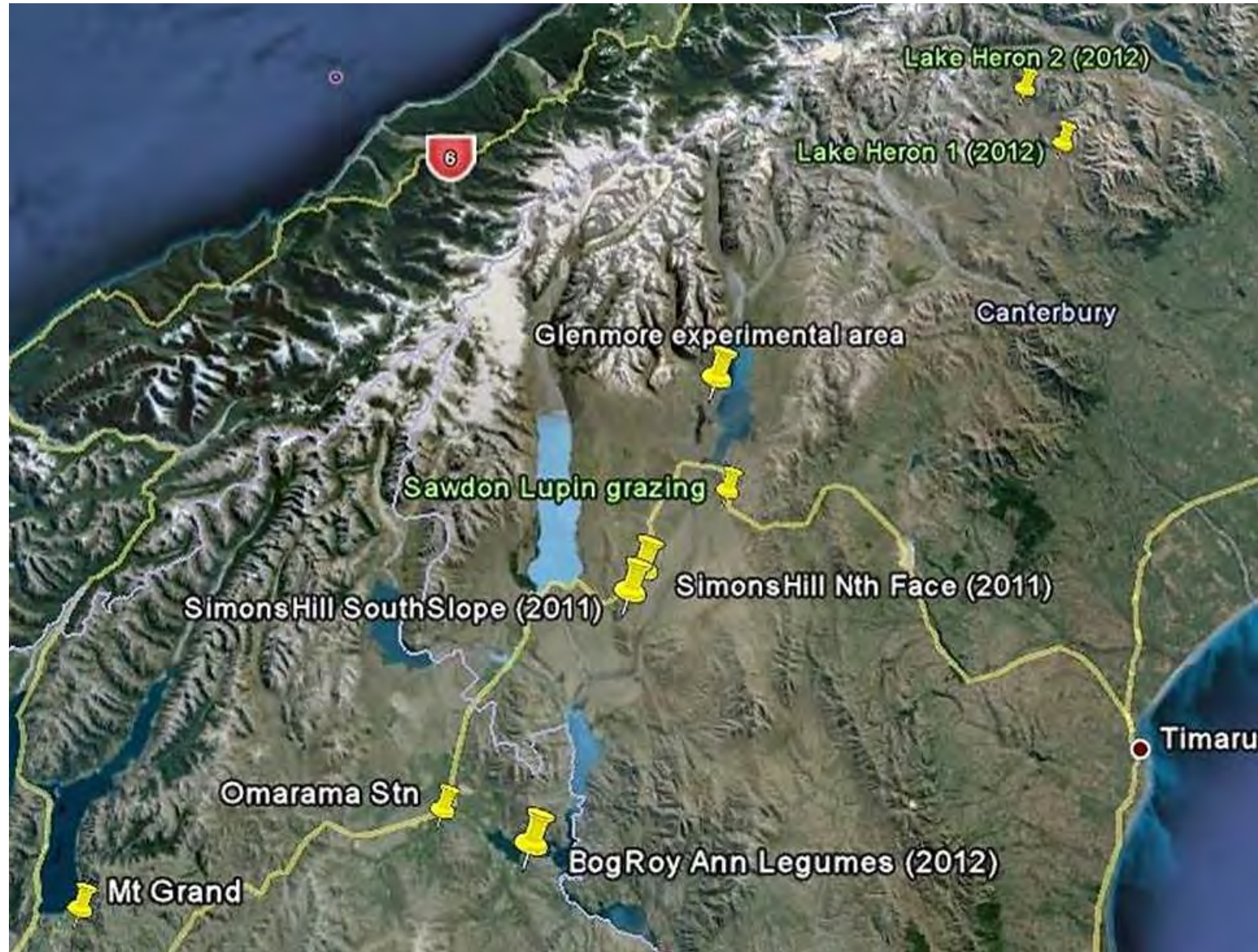
Glenmore

Simon's Hill

Bog Roy

Omarama

Mt Grand





# Glenmore Station

- Glacial moraine
- Low pH, high soluble aluminium
- Rainfall: 630 mm (estimated from NIWA, Tekapo)
- Resident vegetation:
  - mostly browntop, sweet vernal, Kentucky bluegrass, some fescue tussock and hieracium
  - some white clover, annual striated and suckling clover, annual haresfoot trefoil, sorrel

# Glenmore

- Browntop
- dominated pasture

Also:

*Poa pratensis*

Haresfoot trefoil

Sweet vernal

Suckling clover

White clover

ity  
Hawkweed



















**Preparation for sowing – spring 2012**







**10 Dec 2012**  
**Lupin 0 t lime/ha**





# Experimental

- Two lime rates (0 or 3t lime/ha)
- Two perennial lupins (Russell and blue)
- 5 sowing rates (2, 4, 8, 12, 16 and 30 kg/ha)

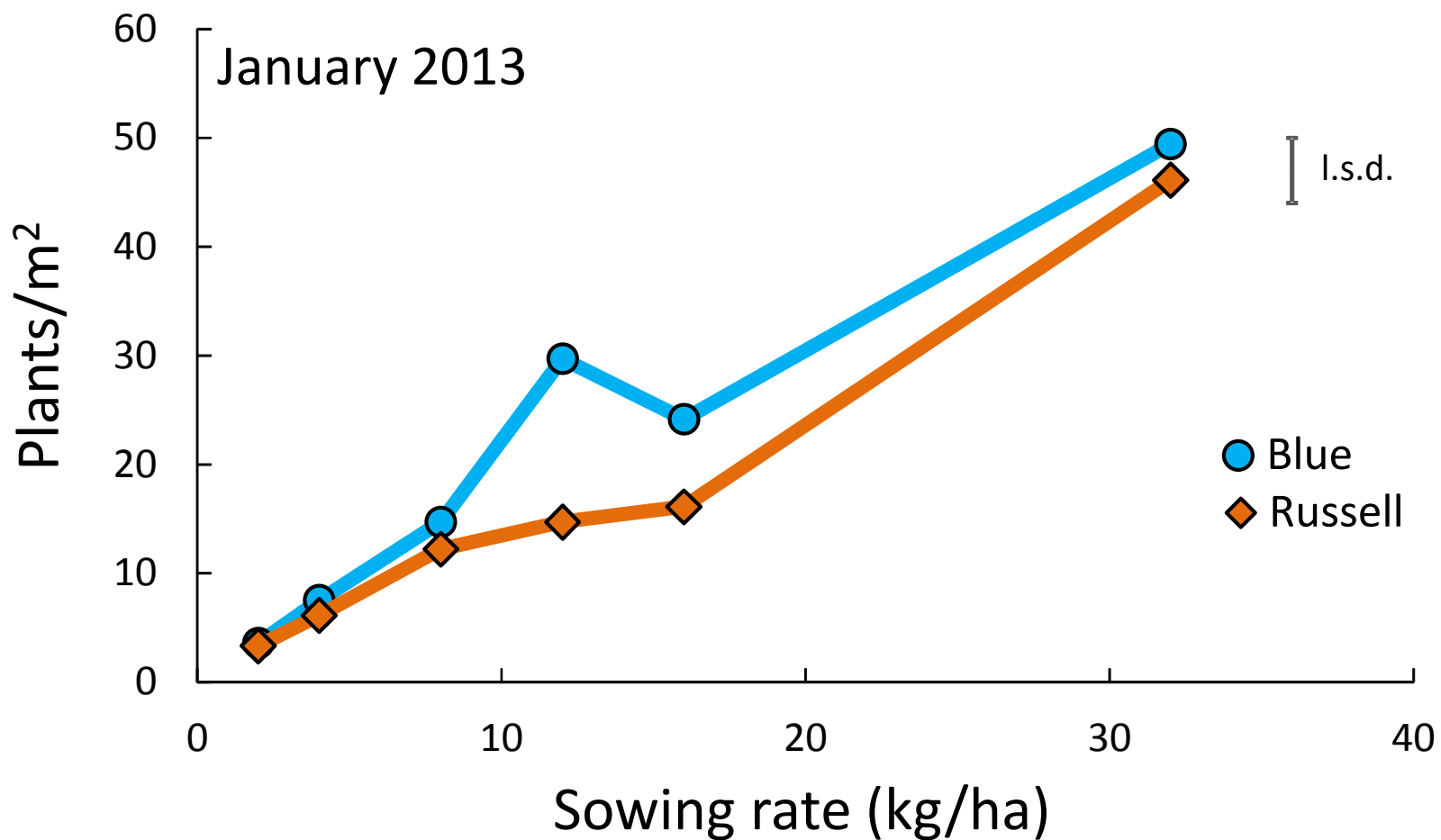


**10 Dec 2012 - Flexiseeder**





# Lupin population@ 6 weeks

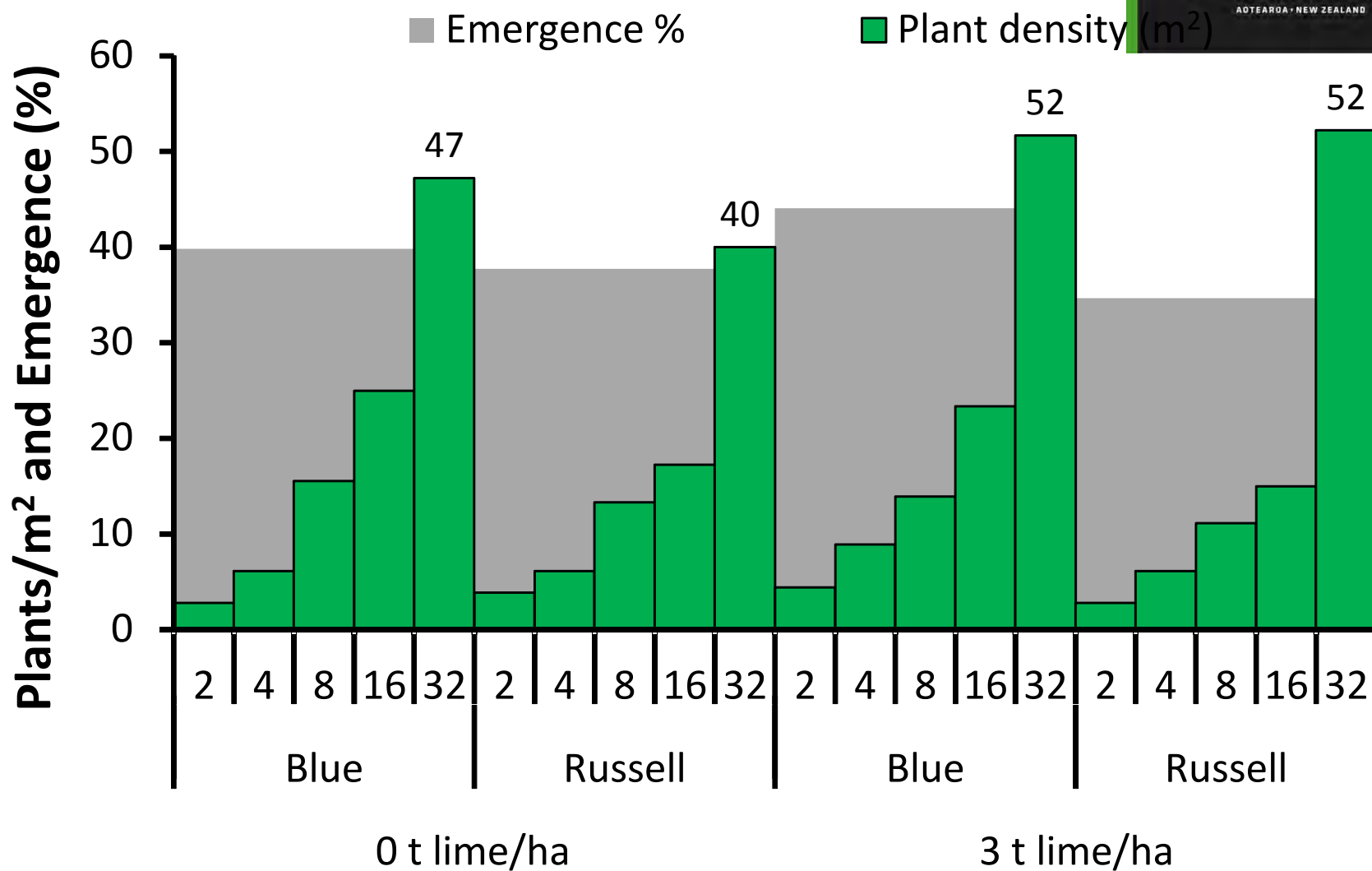






# Year 1: Lupin seedlings @ 6 weeks





Lime rate, lupin variety and sowing rate (kg/ha)





**32 kg seed/ha**

**12 kg seed/ha**

**Year 1: Lupin seedlings @ 6 weeks**



# Year 1: Lupin seedlings @ 7 weeks



32 kg seed/ha

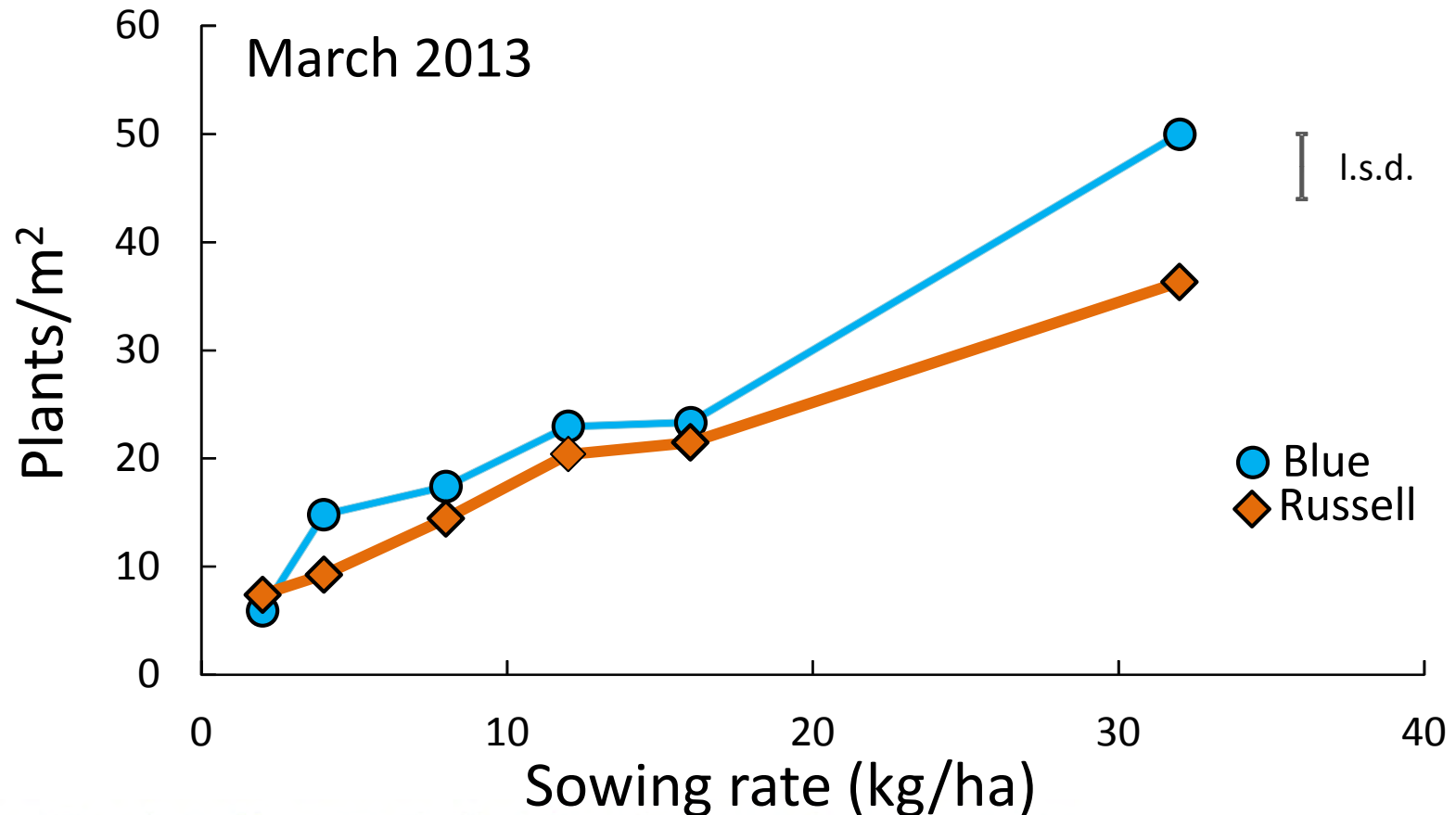
12 kg seed/ha



# Year 1: Lupin seedlings @ 8 weeks

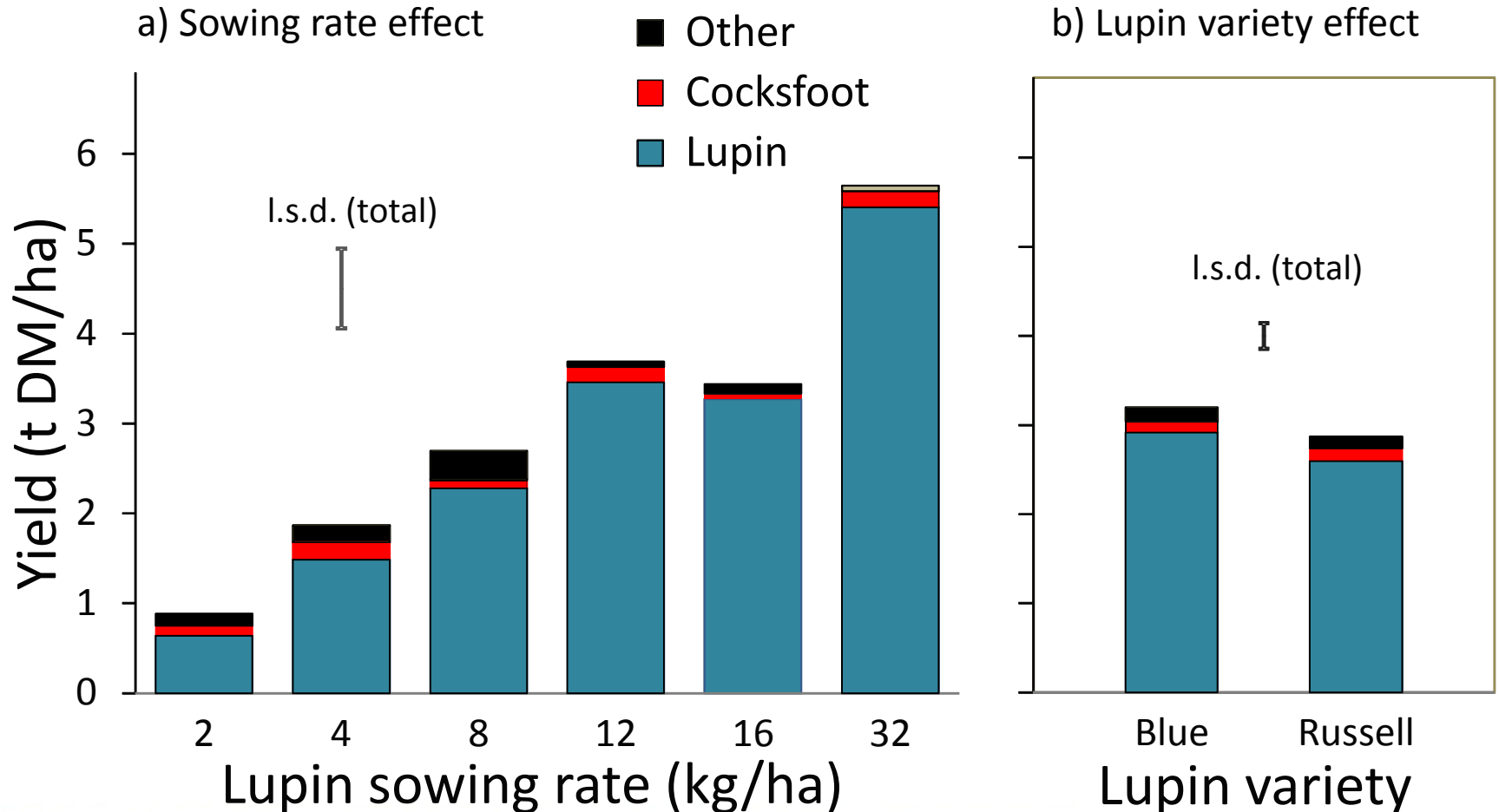


# Lupin population@ 3 months





# DM Yield: @ 4 months







Blue

Russell

Year 1 April: 2 kg seed/ha





Russell

Blue

**Year 1, April: 8 kg seed /ha**





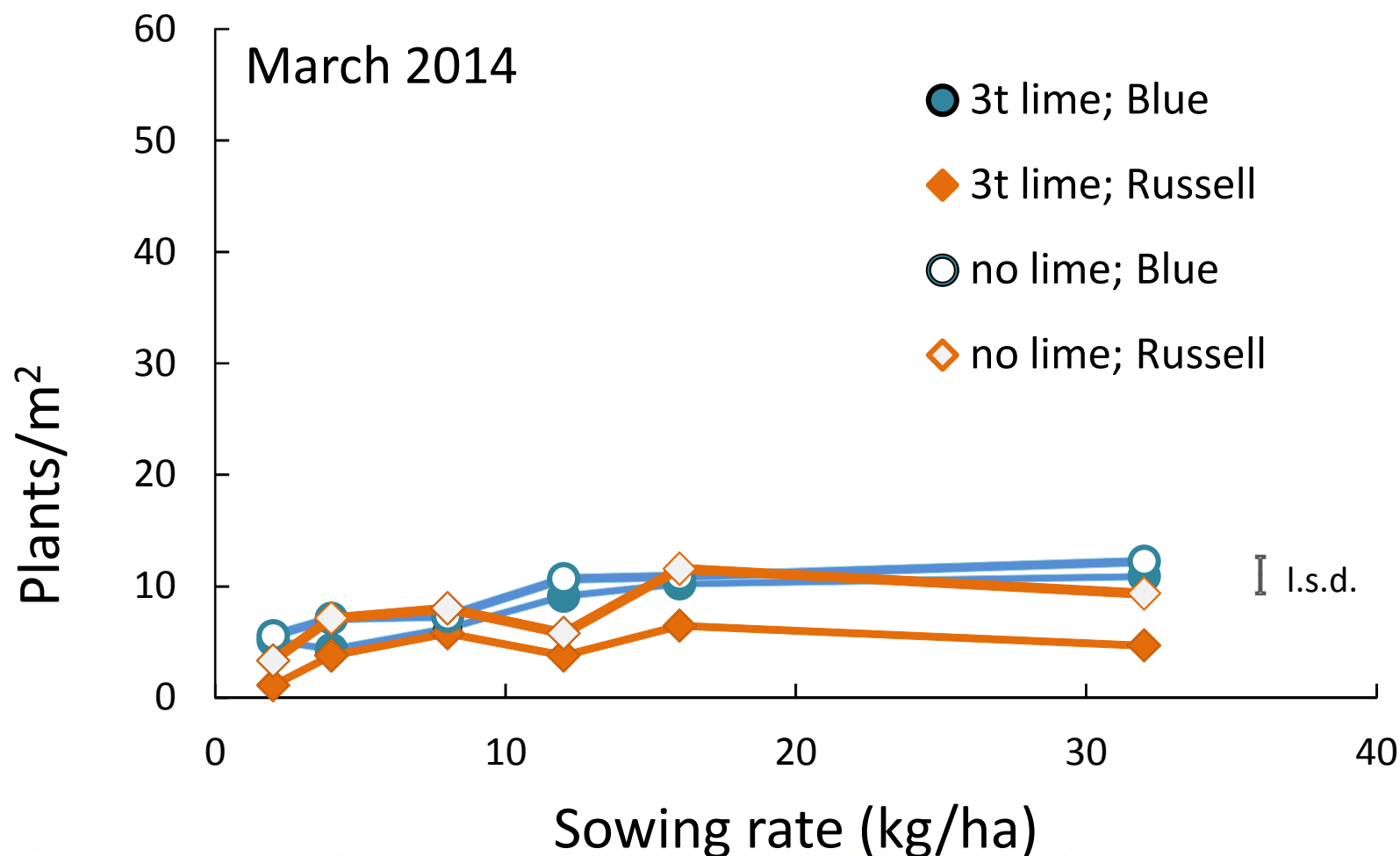
**Russell**

**Blue**

**Year 1 April: 32 kg seed /ha**



# Lupin population@ 15 months







2 kg seed/ha

**Year 2: 17 September 2013**





8 kg seed/ha

**Year 2: 17 September 2013**





**32 kg seed/ha**

**Year 2: 17 September 2013**





2 kg seed/ha

**Year 2: 1 October 2013**





8 kg seed/ha

**Year 2: 1 October 2013**





32 kg seed/ha

**Year 2: 1 October 2013**





**2 kg seed/ha**

**Year 2: 3 December 2013**





**8 kg seed/ha**

**Year 2: 3 December 2013**





**32 kg seed/ha**

**Year 2: 3 December 2013**





**9 December 2013 - 1200 Merino 2-tooths.**



# Residual lupin and cocksfoot







**2 kg seed/ha**

**Year 2: regrowth to end of March 2014**





**8 kg seed/ha**

**Year 2: regrowth to end of March 2014**



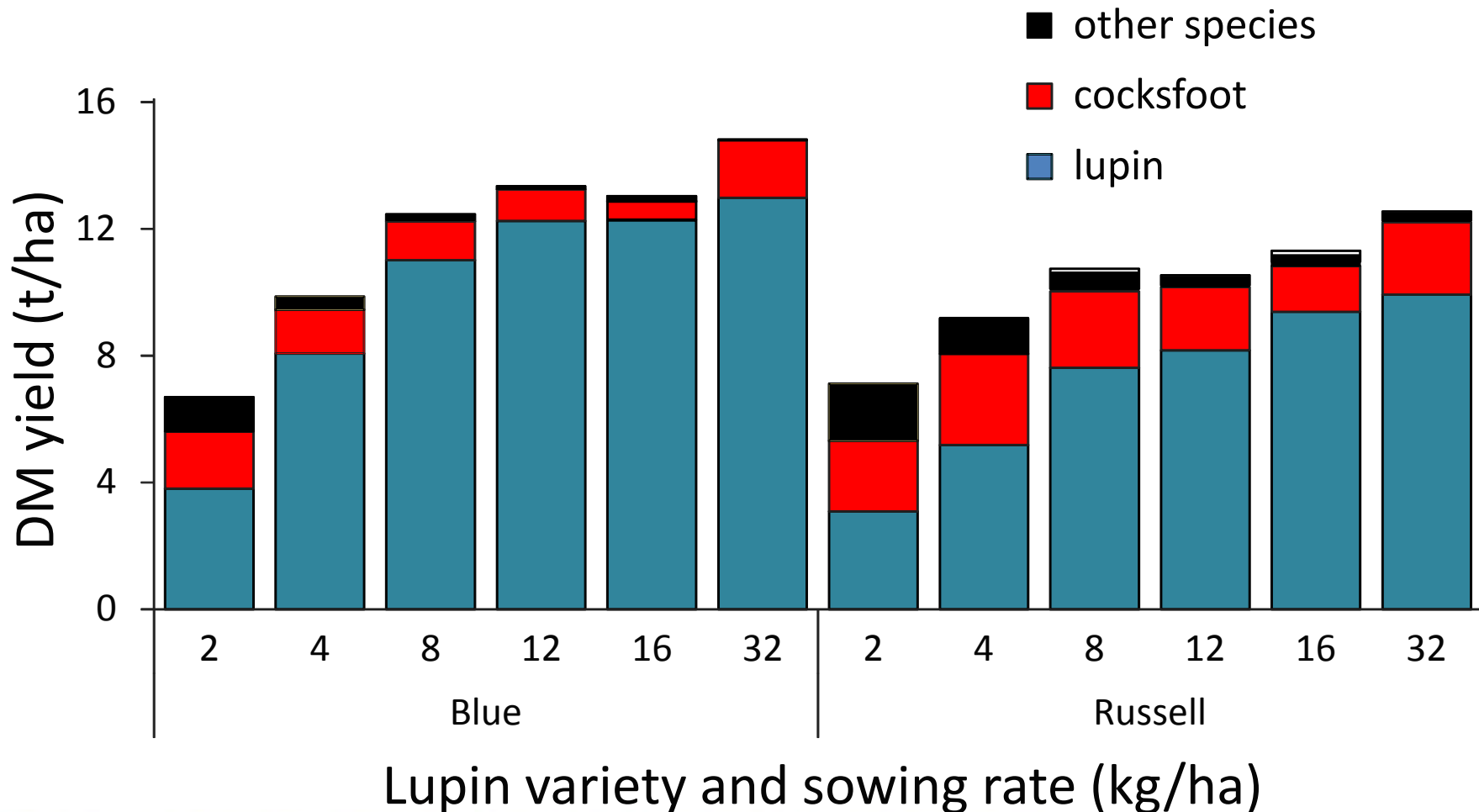


**32 kg seed/ha**

**Year 2: regrowth to end of March 2014**

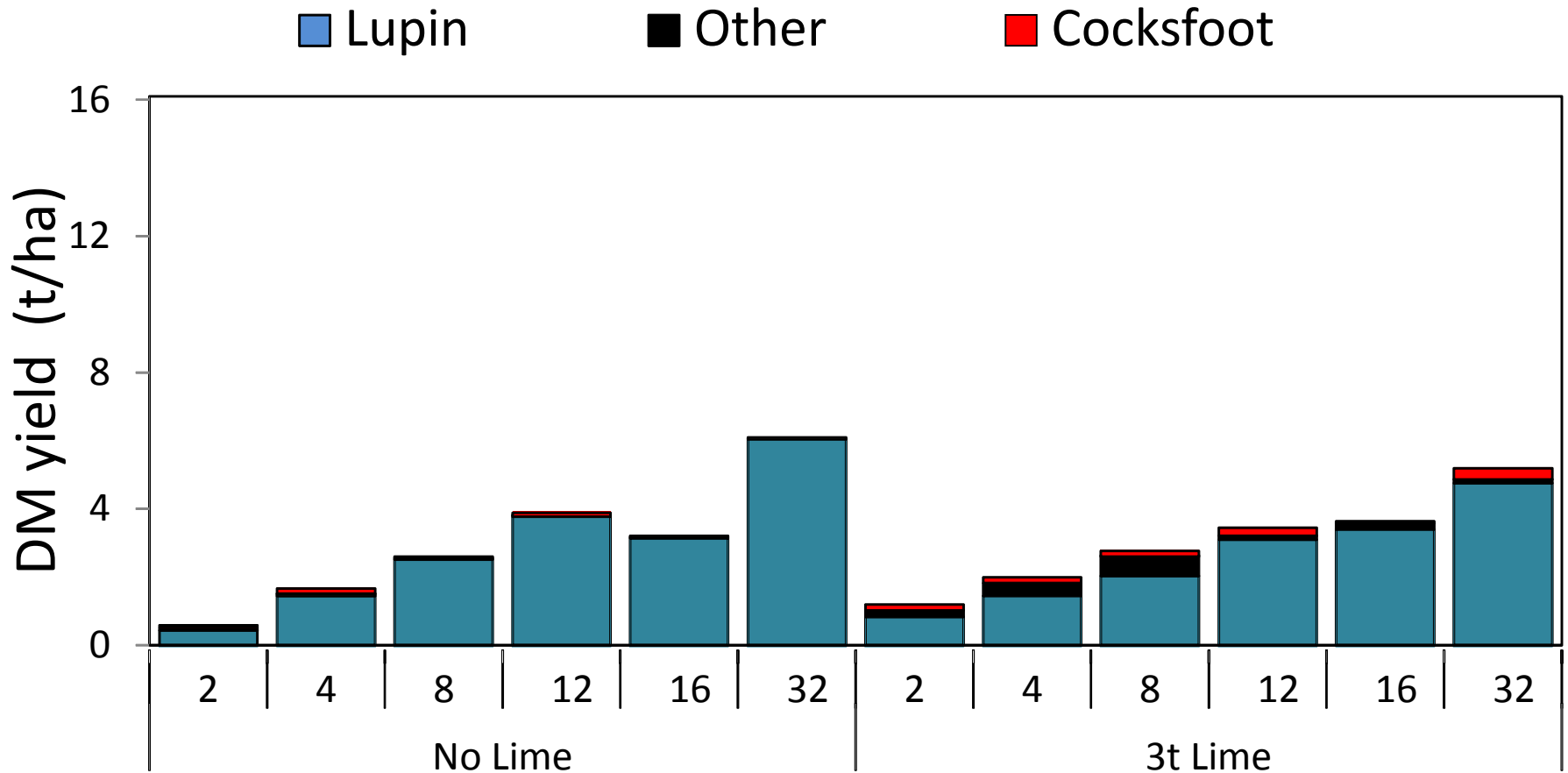


# DM Yield: Year 2 (Sept-April)





# DM Yield: Year 2 (Jan-Apr)



Lime (t/ha) and lupin sowing rates (kg/ha)





**2 kg seed/ha**

**Year 3: 4 October 2014**





**8 kg seed/ha**

**Year 3: 4 October 2014**





**32 kg seed/ha**

**Year 3: 4 October 2014**



# Paddocks of lupin

- Sown December 2013
- After 1 year of ryecorn







**Ryecorn paddock to be sown to lupin**





**Six weeks after sowing**





**Seedlings @ 6 weeks after sowing**





**Caucasian clover and cocksfoot included in the seed mix**





**4 months after sowing**





**4 October 2014 recovery after autumn graze**



31 October 2014







**Lambs to lupins: 31 Oct 2014**



# Lupins - to date

- Autumn + spring herbicide (burn) ryecorn
- Sow in warm soil temperatures after fallow (December)
- Sow at 10 – 20 mm
- Sow at 8 kg/ha with cocksfoot + Cc
- Inoculate
- Fert 50 kg ha S Super/yr
- Graze in year 1 (post- flowering )



# Acknowledgments

- Will and Em Murray – for daring to try
- Denis Fastier – keeping academics grounded
- NZMerino – for 4 years funding at Glenmore

