



# TASMANIAN SEED INDUSTRY GROUP INC

## Can we achieve ryegrass seed yields of 5 tonnes per hectare?

Tom Graesser – Ben Lomond Agriculture Pty Ltd – Tasmania, Australia – tomlizg@gmail.com  
Bramwell Heazlewood – Tasmanian Seed Industry Group Inc. (TSIG) – Tasmania, Australia – meltonvale@bigpond.com

### Introduction

The Tasmanian Seed Industry Group Inc. (TSIG) have been conducting research to improve the competitiveness of the Tasmanian pasture seed industry by improving the profitability of pasture seed crops. Since attending the IHSG Workshop in Methven, New Zealand in 2013, a major focus of the group has been perfecting Moddus® and urea inputs in ryegrass seed crops.

Moddus® (trinexapac-ethyl 250 g/L) and urea (46% nitrogen) usage is widespread in the Australian seed production industry. With rising input costs and increased environmental awareness, TSIG realised considerable work was required to determine the optimum rates of Moddus® and urea inputs to achieve high ryegrass seed yields in the Tasmanian environment.

Using a voluntary levy from member seed producers, TSIG conducted two seasons of small-plot replicated field trials and a paddock-scale demonstration site looking at various Moddus® and urea strategies. Results across all trials suggest more 'moderate' input rates can still achieve massive yields of 4.72 t/ha clean seed.



TSIG Field Day – December 2020 – Ryegrass demonstration trial site

### Materials & Methods

Season	2018/2019	2019/2020	2020/2021
Trial design	Replicated small-plot, 4 replicates		Paddock-scale
Crop	Italian ryegrass		Annual ryegrass
Location	Whitemore, Tasmania	Longford, Tasmania	Cressy, Tasmania
Number of treatments	Various Moddus® and urea rates and application timings		1 'high' input + 1 'moderate' input



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### Results and Discussion

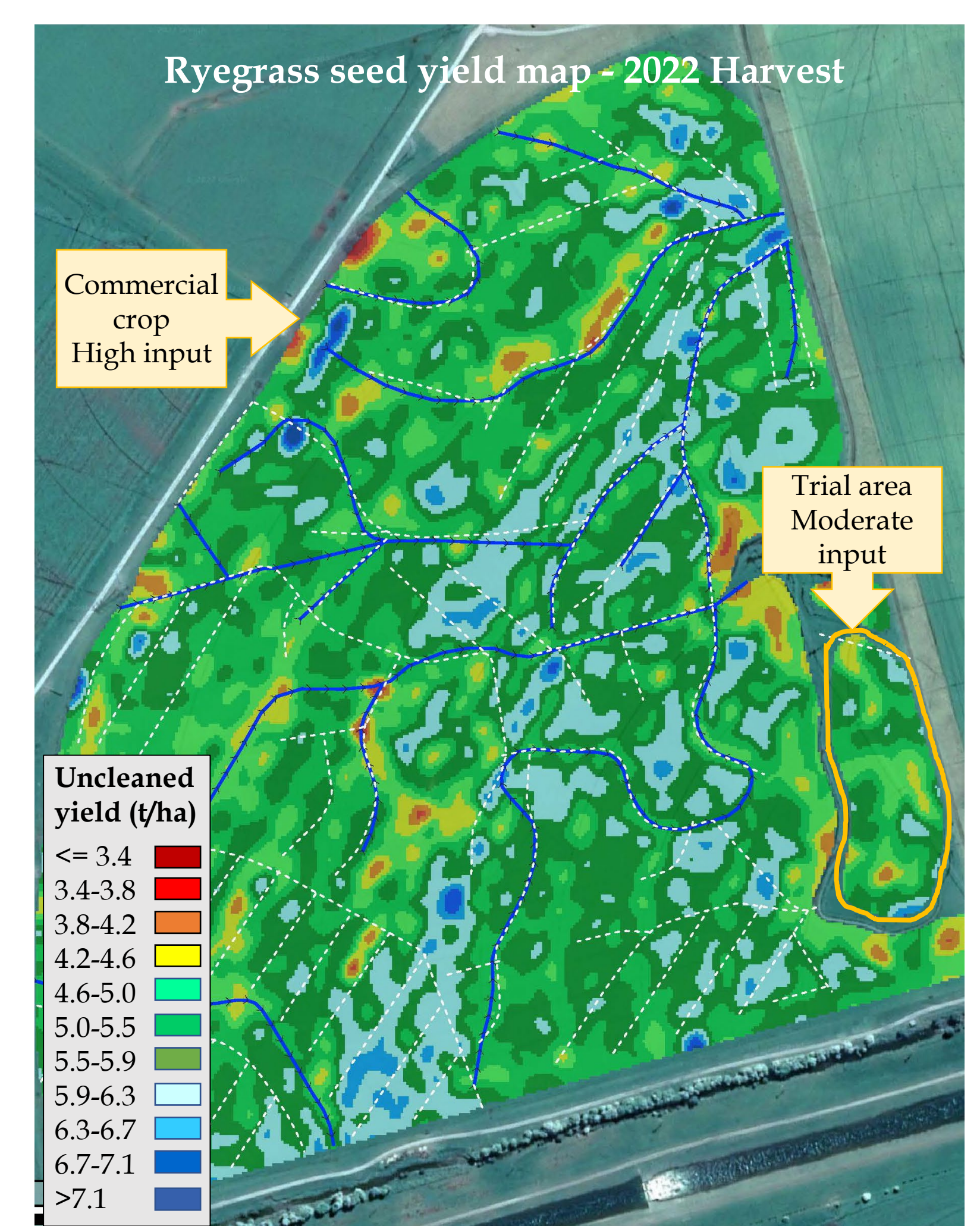
#### Replicated small-plot field trials - 2018/2019 & 2019/2020

- Results suggested more 'moderate' input rates would achieve similar yields to crops with higher inputs.
- Moderate inputs were more profitable and better meet environmental and community expectations.
- Results were similar for both seasons.
- While the results looked good on paper, it was difficult for producers to see how this more 'moderate' usage would translate to a commercial paddock scale.
- At the time, the maximum label rate of Moddus® in Australia was 1.6 L/ha. TSIG have since been granted a minor use permit for its use up to 2.4 L/ha and as a split application as per New Zealand label.

	Moddus® strategy		Urea strategy	
	Moderate	High	Moderate	High
Input level	Moderate	High	Moderate	High
Total rate	1.6 L/ha	2.4 L/ha	340-360 kg/ha (156-165 kg N/ha)	420-460 kg/ha (193-211 kg N/ha)
# Applications	2	2	3	3
Seed yield	2.7-3.0 t/ha	3.0-3.4 t/ha	2.9-3.6 t/ha	2.5-2.6 t/ha
Gross margin	-	-	AU\$ 3,500/ha	AU\$ 2,000/ha

#### Paddock-scale demonstration trial 2020/2021

- A demonstration trial was conducted on a 70-hectare commercial annual ryegrass seed crop under centre-pivot irrigation, in the northern-midlands area of Tasmania.
- 1.3-hectares of the crop was treated with more 'moderate' Moddus® and urea input rates. The remainder of the commercial crop received the 'high' input rates commonly used by industry.
- The results of the demonstration trial were very exciting!
- Both areas were harvested and weighed separately – and had the same uncleaned seed yields.
  - Both input rates averaged very high yields:
    - 5.12 tonnes of unclean seed per hectare
    - 4.72 tonnes of clean seed per hectare.
  - Moderate inputs saved growers AU\$ 133 per hectare on Moddus® and urea costs.



Input level	Moderate	High
Area treated	1.3 ha	68.7 ha
Urea rate	320 kg/ha (= 147 kg N/ha over 3 timings)	375 kg/ha (= 172 kg N/ha over 3 timings)
Moddus® rate	1.6 L/ha over 2 timings	2.4 L/ha over 2 timings
Seed yield (uncleaned)	5.12 t/ha	5.12 t/ha
Seed yield (clean)	4.72 t/ha	4.72 t/ha
Cost saving	AU\$ 133/ha	-