Effects Trinexapac-ethyl (TE) on Established Creeping Red Fescue Seed Crop

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Introduction

Trinexapac-ethyl is commonly used on grass seed crops in Oregon, Denmark and New Zealand to improve harvestability and seed yields. This plant growth regulator (PGR) shortens internodes which reduces lodging and allows for better pollination, seed set and harvesting. Data collected on perennial ryegrass and tall fescue in Oregon has shown TE can reduce seed head length and increase seeds/head which leads to an increase in seeds/m2.

In Canada, Parlay (trinexapac-ethyl) is registered on perennial ryegrass grown for seed production. It is a Syngenta product distributed by BrettYoung Seeds. The Peace Region Forage Seed Association is aiming to increase the label registration to include clovers, bromegrasses, timothy and creeping red fescue through the completion of research and field scale trials if the product shows potential.

Figure 1. TE on creeping red fescue in 2015.

Materials and methods

Trials were conducted on established creeping red fescue, timothy and meadow bromegrass seed crops at AAFC Beaverlodge in 2015, 2016 and 2017. Parlay was applied at 3 rates x 2 stages to small plot (2 x 10 m) RCB with 4 replicates. Grasses received a fall nitrogen application. Some treatments included early spring applied UAN with and without growth regulator (Table 1).

Table 1. Growth Regulator Treatment List

Treatment (kg ai/ha)		Stage	UAN (spring applied)
1	0.200	2 Nodes	
2	0.300	2 Nodes	
3	0.400	2 Nodes	
4	0.200	Heading	
5	0.300	Heading	
6	0.400	Heading	
7	0.300 + UAN	2 Nodes	40 lbs of N/acre*
8	0.300 + UAN	Heading	40 lbs of N/acre*
9	UAN		40 lbs of N/acre*
10	Check		

*50 l/acre of UAN

Summary

AAFC Beaverlodge received above average precipitation in both 2015 and 2016 (Table 2). Applications of TE at early heading stage slightly reduced plant heights in both years. TE has not reduced lodging or seed yields in creeping red fescue in two trials to date.

Table 2. Growing Season Precipitation (inches)

	2016	2015	LTA (1981-2011)
May	2.6	1.2	1.6
June	4.5	3.6	2.5
July	2.3	5.8	2.8
August	8.5	1.9	2.3
September	1.1	0.8	1.7
October	1.5	1.1	1.0
TOTAL	20.5	14.4	11.9

Table 3. Effects of trinexapac-ethyl on a 2nd year stand of creeping red fescue, 2015.

Treatment kg ai/ha	Plant Height (cm)	Lodging (0-10)	Seed Yield kg/ha	Germination %	1000 kwt g
0.200 at 2 Nodes	73	10	1008	94.5	1.202
0.300 at 2 Nodes	73	10	980	93.3	1.165
0.400 at 2 Nodes	74	10	879	87.0	1.098
0.200 at Heading	72	10	967	92.0	1.143
0.300 at Heading	66	10	895	89.5	1.116
0.400 at Heading	63	10	768	92.3	1.123
0.300 at 2 Nodes + UAN	68	10	1086	95.0	1.215
0.300 at Heading + UAN	71	10	832	94.5	1.226
UAN	76	10	853	90.0	1.137
Check	71	10	934	93.5	1.185
CV%	7.9		14.8	5.7	5.8
LSD (P=.05)	NSD		NSD	NSD	NSD

Figure 2. Effects of trinexapac-ethyl on seed yields on a 2nd year stand of creeping red fescue, 2015.

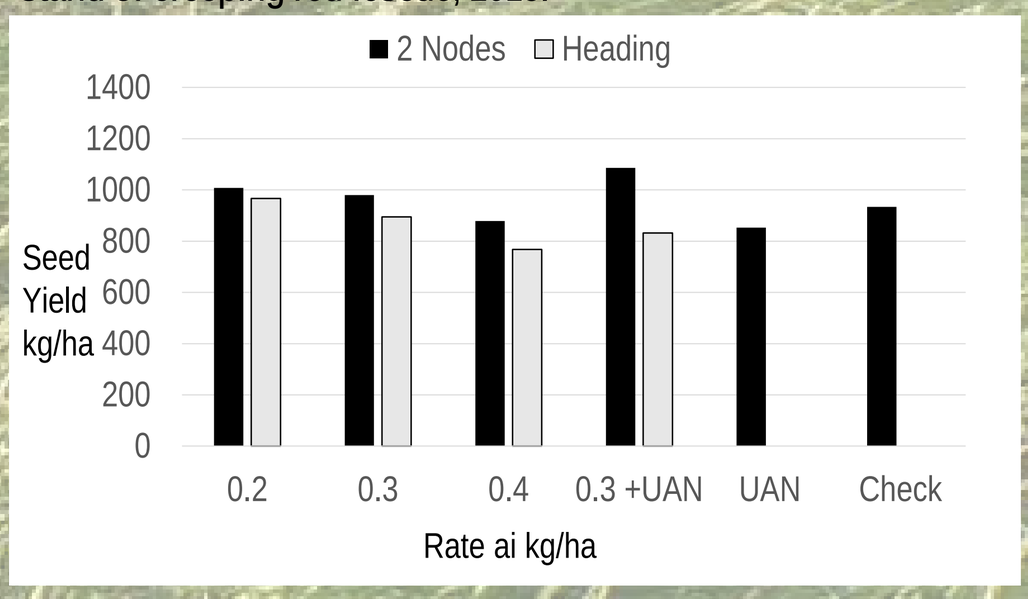
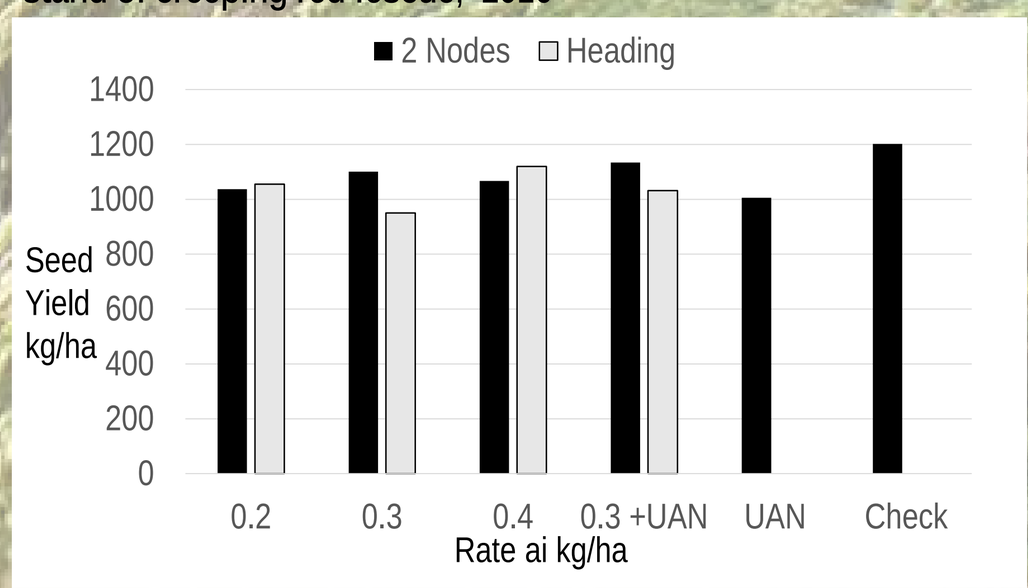


Table 4. Effects of trinexapac-ethyl on a 1st year stand of creeping red fescue 2016

Treatment kg ai/ha	Plant Height (cm)	Lodging (0-10)	Seed Yield kg/ha	Germination %	1000 kwt g
0.200 at 2 Nodes	76.8 ab	7.0	1037	92.3	1.257
0.300 at 2 Nodes	77.0 ab	7.0	1101	93.3	1.256
0.400 at 2 Nodes	74.8 ab	7.0	1067	93.0	1.299
0.200 at Heading	74.3 ab	7.0	1055	88.3	
0.300 at Heading	74.0 ab	7.0	950	90.0	1.312
0.400 at Heading	72.0 b	7.0	1120	89.5	1.279
0.300 at 2 Nodes + UAN	72.8 b	7.0	1134	90.8	1.269
0.300 at Heading + UAN	74.0 ab	7.0	1031	94.3	1.319
UAN	79.8 a	7.0	1006	90.3	1.234
Check	76.8 ab	7.0	1202	93.8	1.272
CV%	3.6		24.3	4.5	4.6
LSD (P=.05)	3.8		NSD	NSD	NSD

Figure 3. Effects of trinexapac-ethyl on seed yields a 1st year stand of creeping red fescue, 2016



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