

Crop Summit

Jan, 2015

*Use of Palisade to improve
wheat performance*

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Palisade plant growth regulator

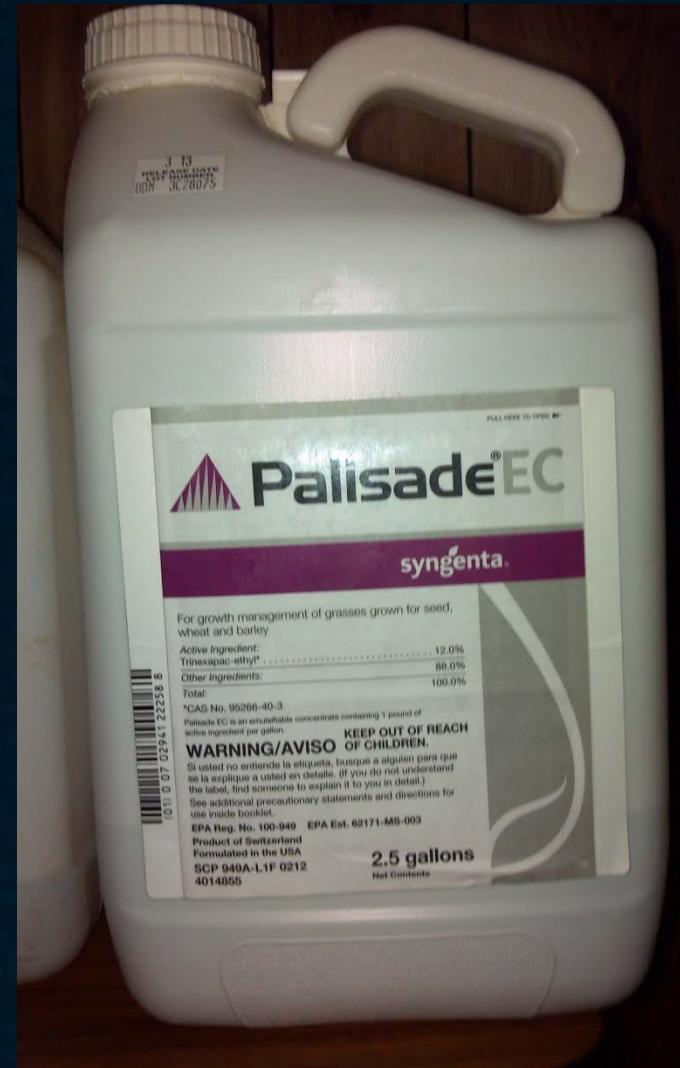
Trinexapac-ethyl from Syngenta

Rate: 10.5 to 14 oz/ac

Stage: g.s. 5\4 to \8 7

(full tiller to second joint)

interferes with the biosynthesis of gibberellic acid to prevent cell elongation which shortens the internodes and strengthens the stem.



Growth stages of wheat

adapted from the University of Illinois

tillering

jointing

boot

heading & flowering

Palisade

Feekes growth stages

4

5

6

7

8

9

10

10.1

Full tiller

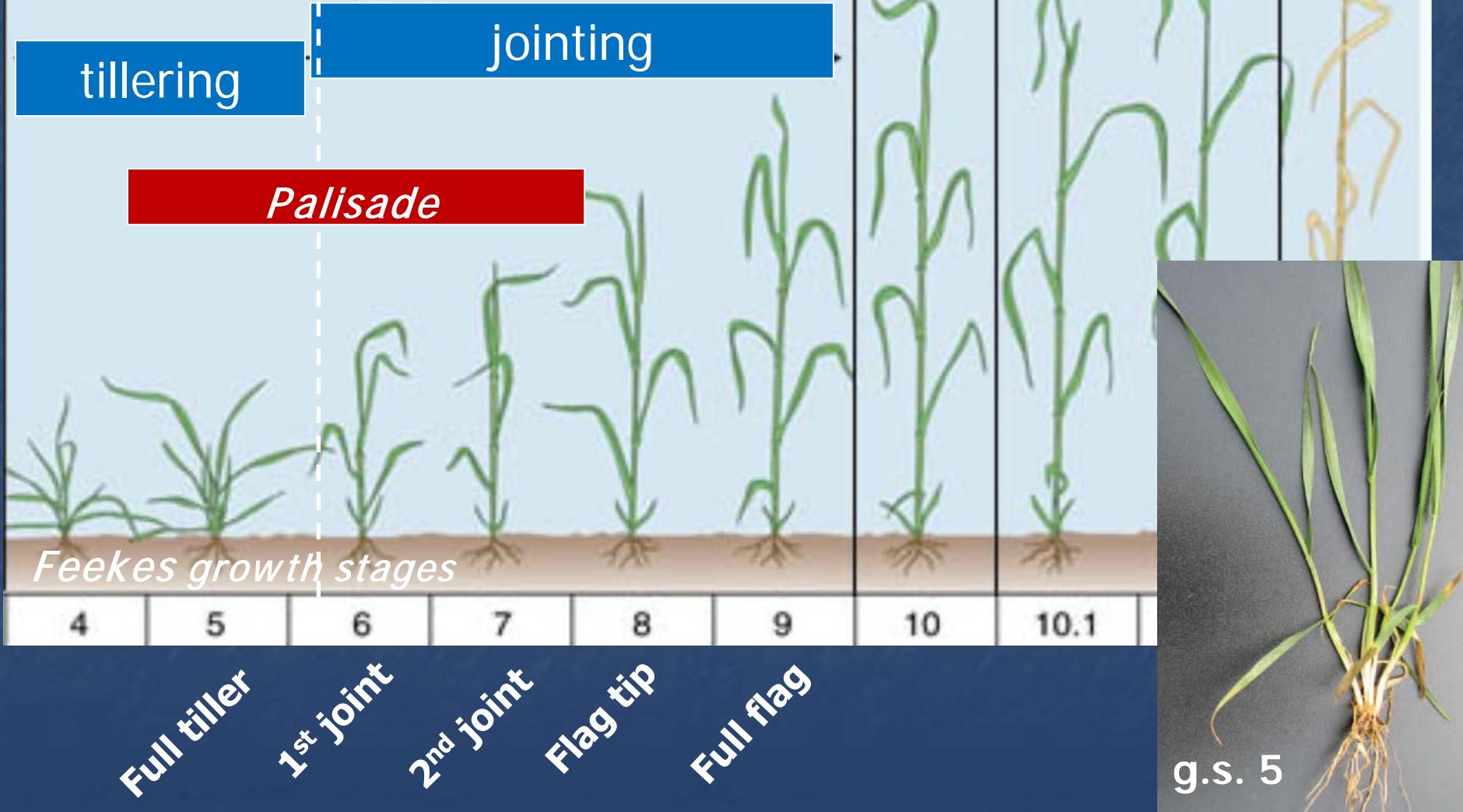
1st joint

2nd joint

Flag tip

Full flag

g.s. 5



Lodging depends on...

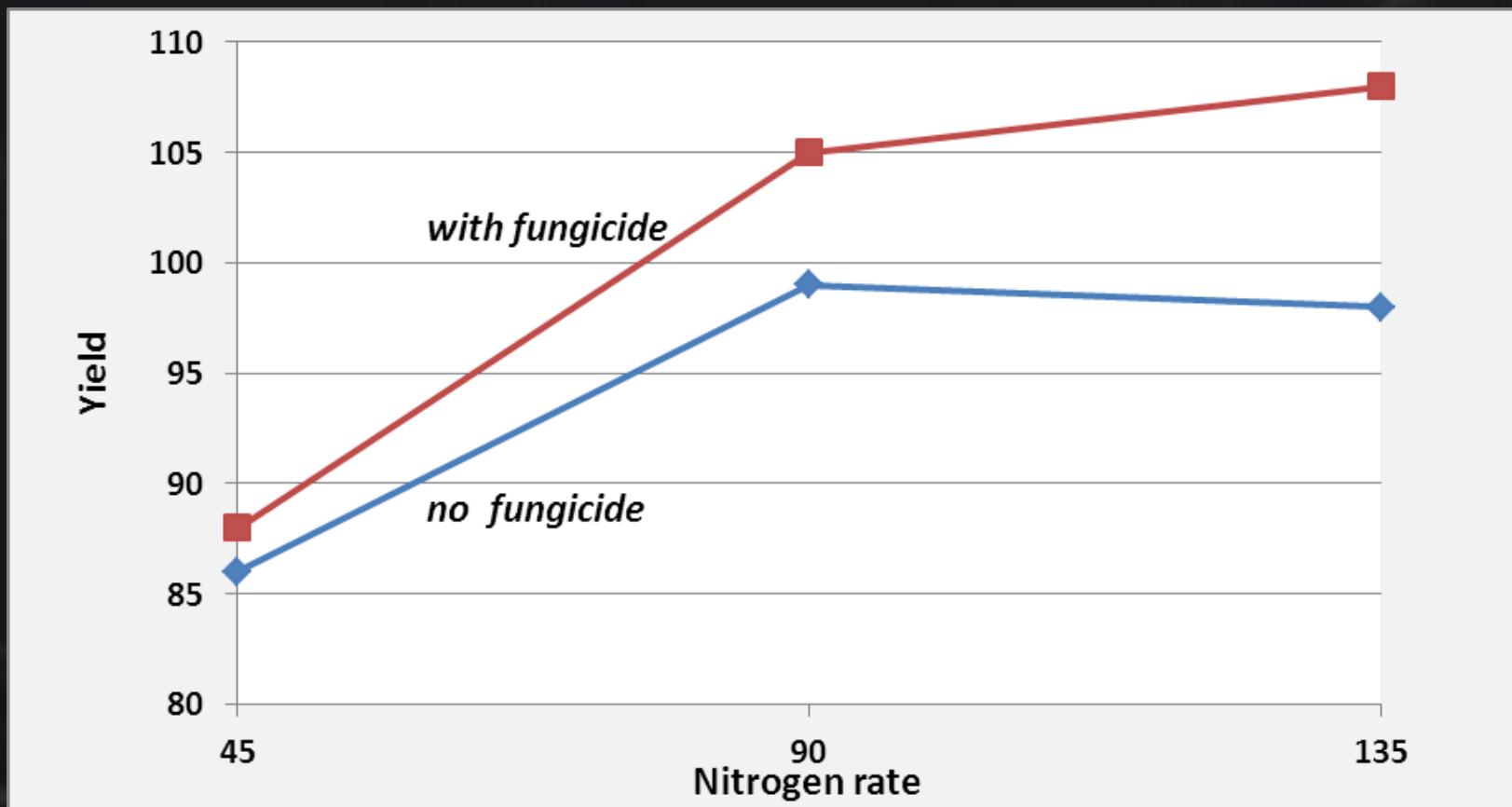
- Warm temperatures at early jointing
- Nitrogen rate
- Variety susceptibility
- Seeding rate
- Date of planting

Lodging costs.....

- plant diseases FHB and DON
- Insect damage,
- fecal material ,
- test weight
- Harvest time
- Equipment repair
- Harvest loss
- Grain yield



Nitrogen response



$$N \text{ rate} = -13 + (1.33 \times YP)$$

60 bu => 67 lbs
80 bu => 93 lbs
100 bu => 120 lbs

Lodging scores

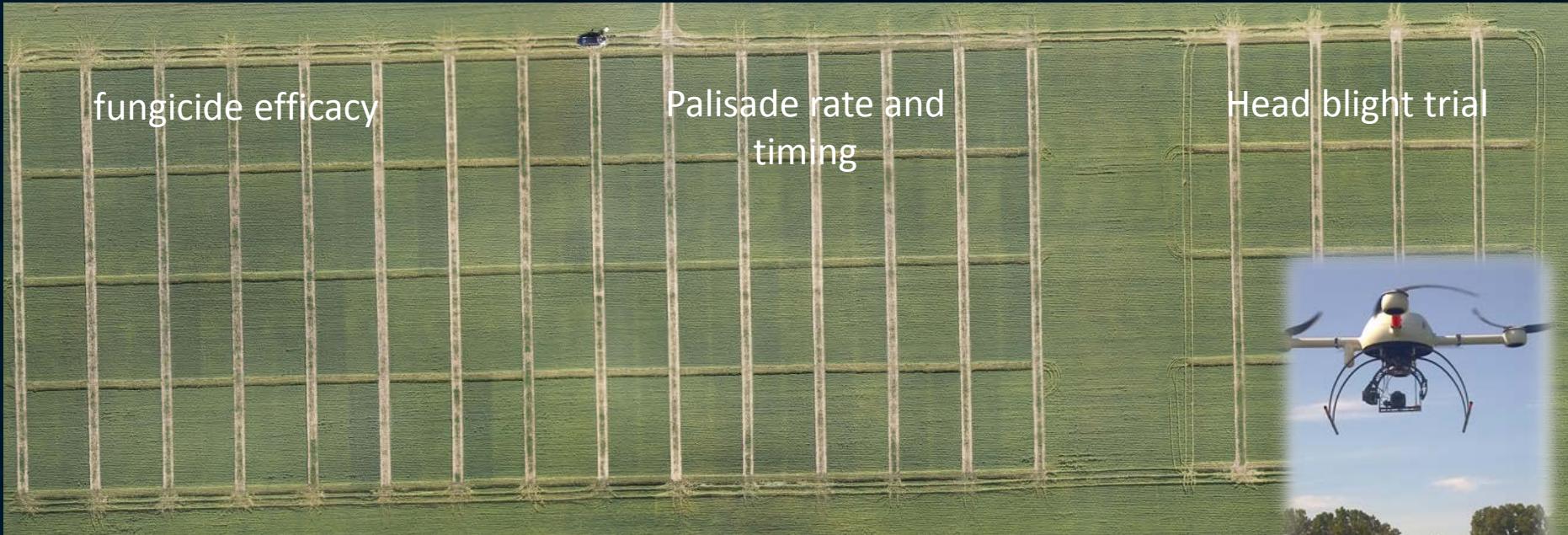
P 25R40	1.6	<u>AC Mountain</u>	5.8
<u>P 25R34</u>	3.8	<u>P 25W43</u>	3.9 ?
<u>Emmit</u>	3.7 ?	<u>Ambassador</u>	2.6
<u>Red Dragon</u>	2.9	Jupiter	2.0
<u>Red Devil</u>	2.2	<u>W1062</u>	4.4?
<u>Red Ruby</u>	2.6	9242W	2.0?
Whale	1.6		
Sunburst	1.5		
Hopewell	2.0	Of the top varieties in the	
9042	1.5	2014 Performance Test ,	
Shirley	1.2	half had a score of “4” or higher	

Palisade Research trials 2012 – 2014

- does it improve standability?
- does it decrease height & strengthen stems?
- does it improve yields?
- does it decrease yields?
- is it cost effective?



Research trials 2012 – 2014

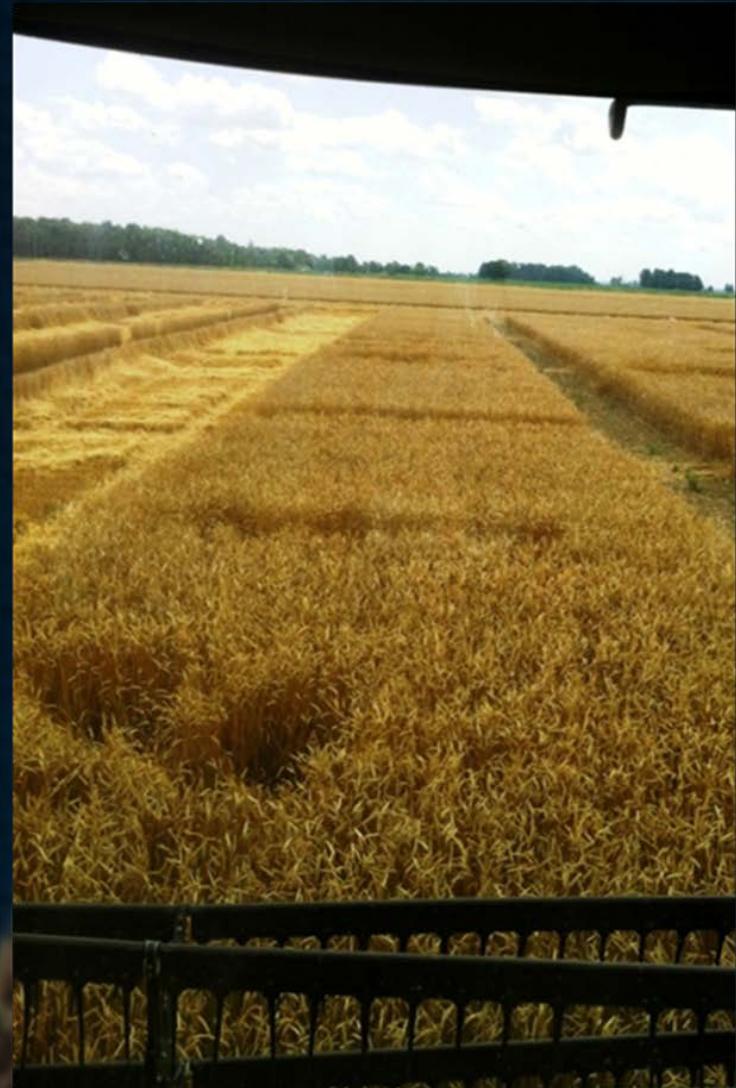


Basso et al , 2014
Four replications
Plot size : 18 ft x 75 ft
Nitrogen : 145 to 160 lbs/ac
No NIS used



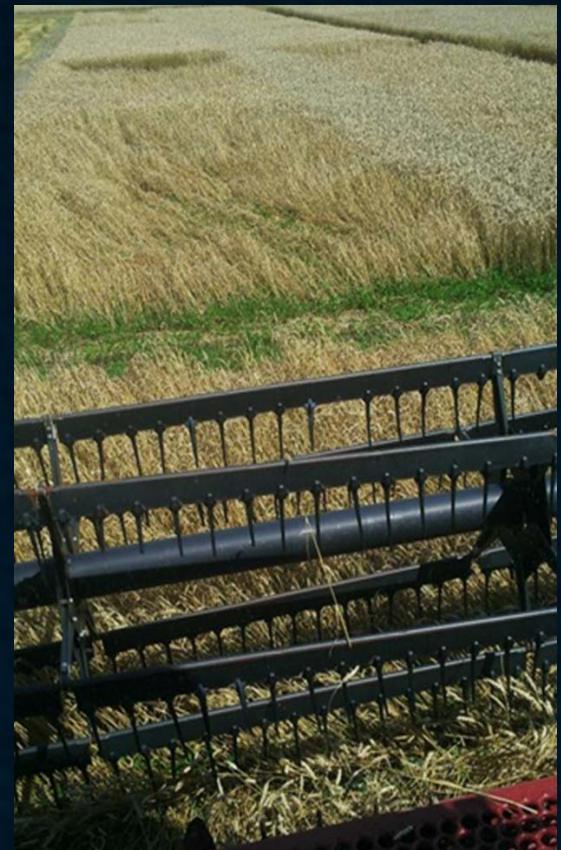
Effect of Palisade 2012 -2014

Comparisons	Rate oz/ac ¹	stage	2012	
			lodg %	yield bu/ac
<i>nontreated</i>	0	---	11	93
	12	6	0	101
<i>application</i>	12	7 ³	3	99
<i>timing</i>	12	8	5	98
	8	7	--	--
<i>application</i>	10	7	7	100
<i>rates:</i>	12	7 ³	3	99
	14	7	1	100



Effect of Palisade 2012 -2014

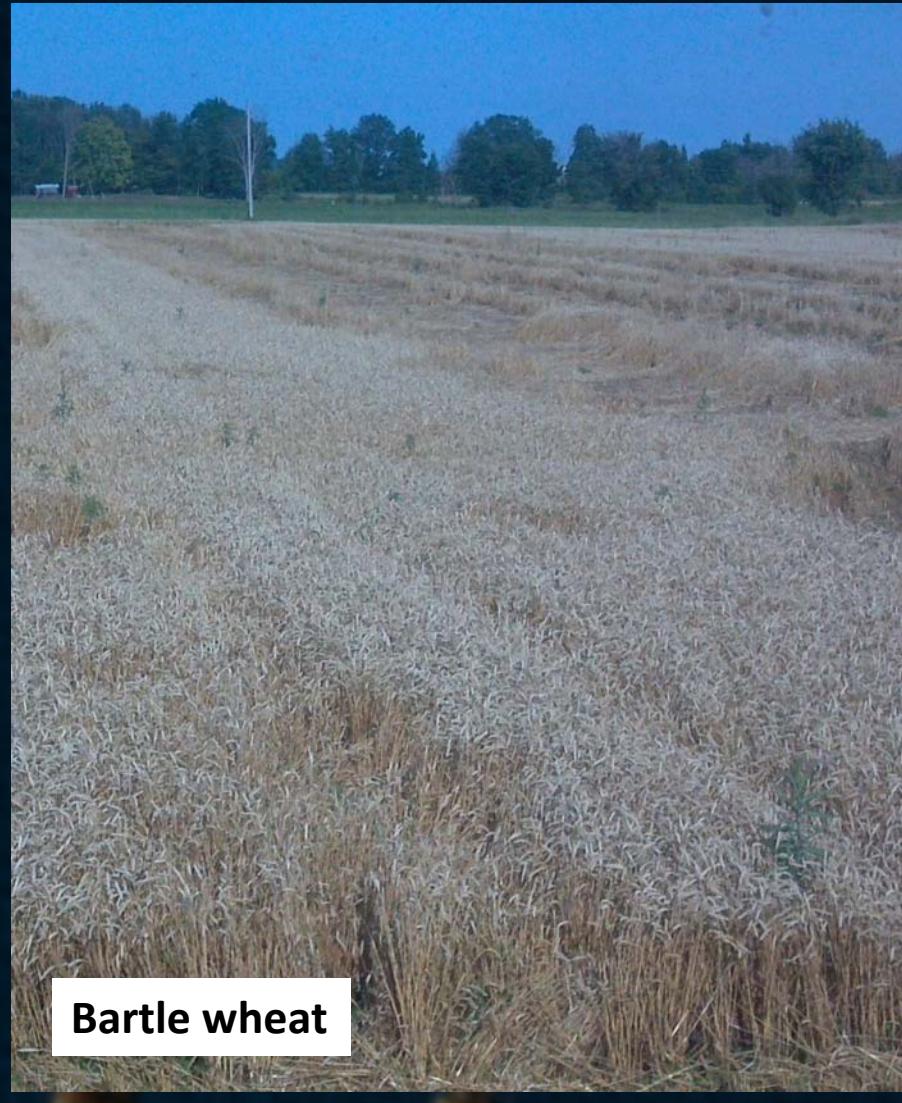
Comparisons	Rate oz/ac ¹	stage	2012		2013	
			lodg %	yield bu/ac	lodg %	yield bu/ac
<i>nontreated</i>	0	---	11	93	48	103
	12	6	0	101	--	--
<i>application</i>	12	7 ³	3	99	8	105
<i>timing</i>	12	8	5	98	18	102
	8	7	--	--	25	102
<i>application</i>	10	7	7	100	16	106
<i>rates:</i>	12	7 ³	3	99	8	105
	14	7	1	100	0	103



Palisade Strip trials, 2013



D'Arcy wheat



Bartle wheat

On-farm Palisade trial results, Kingston & Brown City, MI 2013

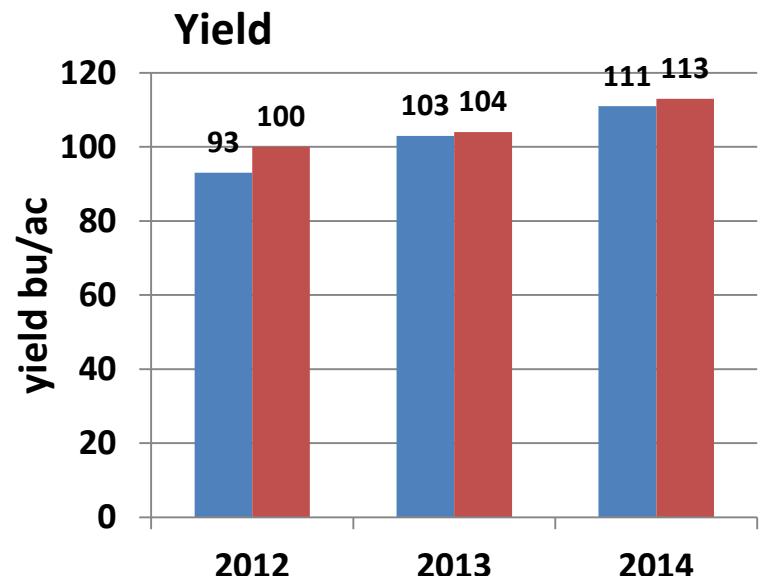
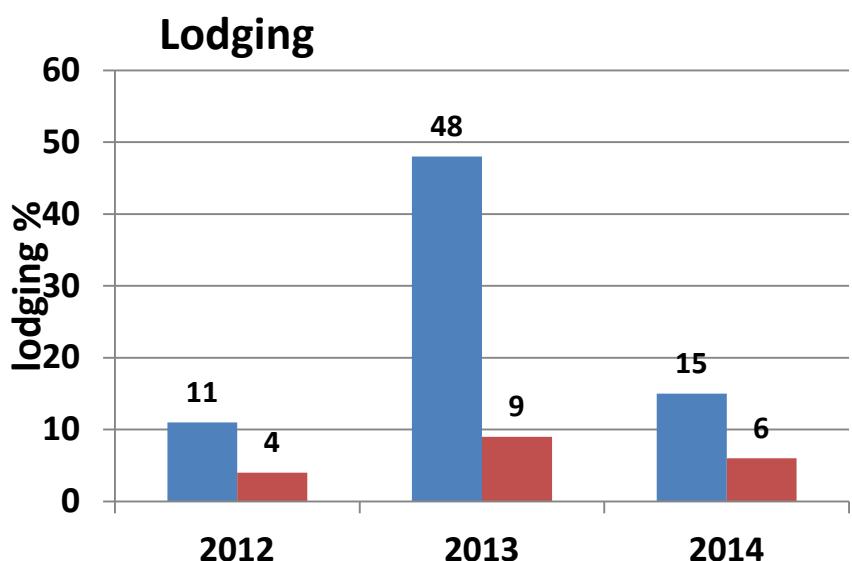
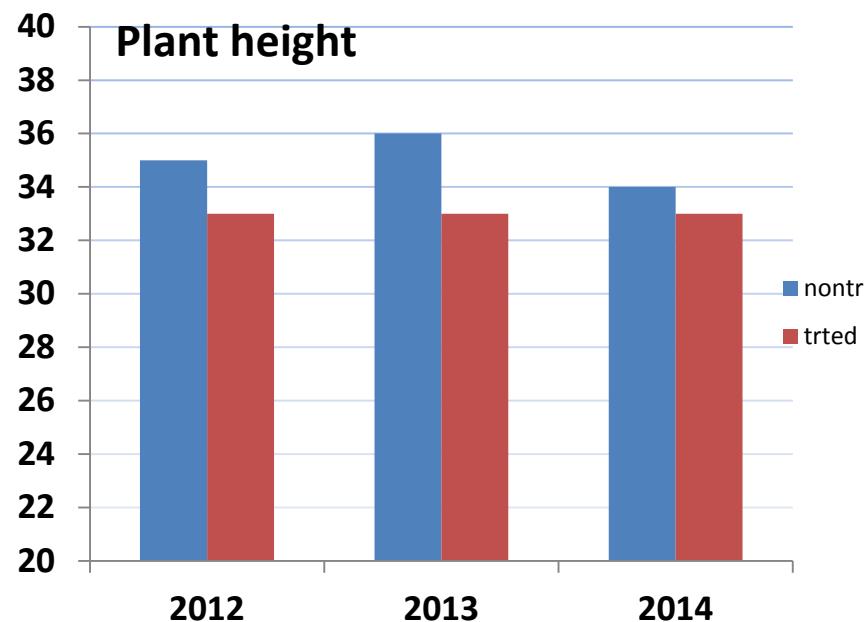
	treatment	yield bu/ac	harvest moist %	test wt lbs	lodging %
D'Arcy:	<i>none</i>	122	13.7	---	50
	Palisade EC	120	13.9	---	1
Bartle:	<i>none</i>	133	12.8	62.0	85
	Palisade EC	132	14.2	61.3	25

Effect of Palisade 2012 -2014

Comparisons	Rate oz/ac ¹	stage	2012		2013		2014	
			lodg %	yield bu/ac	lodg %	yield bu/ac	lodg %	yield bu/ac
<i>nontreated</i>	0	---	11	93	48	103	15	111
	12	6	0	101	--	--	2	113
<i>application</i>	12	7 ³	3	99	8	105	0	113
<i>timing</i>	12	8	5	98	18	102	8	114
	8	7	--	--	25	102	0	114
<i>application</i>	10	7	7	100	16	106	0	113
<i>rates:</i>	12	7 ³	3	99	8	105	2	113
	14	7	1	100	0	103	0	110

Effect of Palisade 2012 -2014

Comparisons	Rate oz/ac ¹	stage	2012		2013		2014	
			lodg %	yield bu/ac	lodg %	yield bu/ac	lodg %	yield bu/ac
<i>nontreated</i>	0	---	11	93	48	103	15	111
	12	6	0	101	--	--	2	113
<i>application</i>	12	7 ³	3	99	8	105	0	113
<i>timing</i>	12	8	5	98	18	102	8	114
	8	7	--	--	25	102	0	114
<i>application</i>	10	7	7	100	16	106	0	113
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	14	7	1	100	0	103	0	110



Palisade plant growth regulator

Summation:

- 1) Palisade significantly reduced lodging
(increased stem strength & reduced height)

- 2) In the absence of lodging, Palisade did not result in yield decreases, and sometime slight increases.

Strategy:

- ***As rescue*** : where lodging may occur
(where N supply is excessive or unpredictable, where excessive seeding rate with early planting.....)
- ***As High yield mgt component:***
where potential for high yield exists,
 - elevate N rate by 20 to 40 lbs
 - use fungicide
- ***Application:*** 10 to 12 oz Palisade at full-tillering or first node

Input	Cost	Return \$5.50/bu	Net Return
Fungicide @ flowering: (7 oz @ \$2.30) application	\$16 8	\$ 22 - 66 4 to 12 bu	\$ (2) - 42
Nitrogen addition: (40 lbs/ac @ 0.50/lb) application	20 5	\$ 11 - 55 2 to 10 bu	\$ (14) - 30
Palisade : (11 oz/ac @ \$1.12) application	12 5	\$ 0 - 33 0 to 6 bu	\$ (17) - 16
<i>range</i>	\$66	\$ 33 - 143	\$ (33) - 105

Thanks



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