Improving management of white mold in soybeans: Impact of seeding rate

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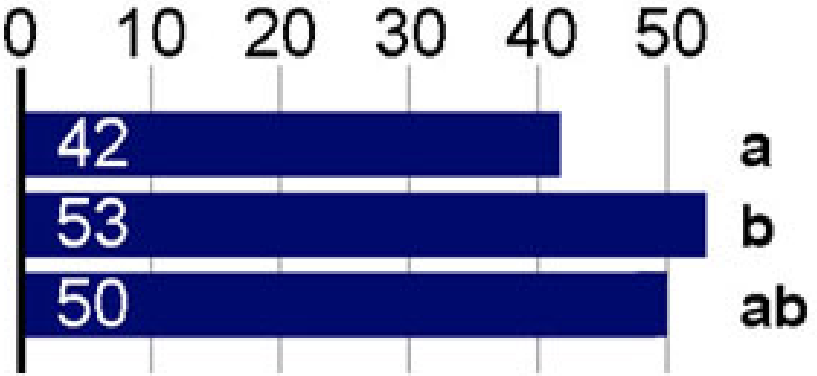
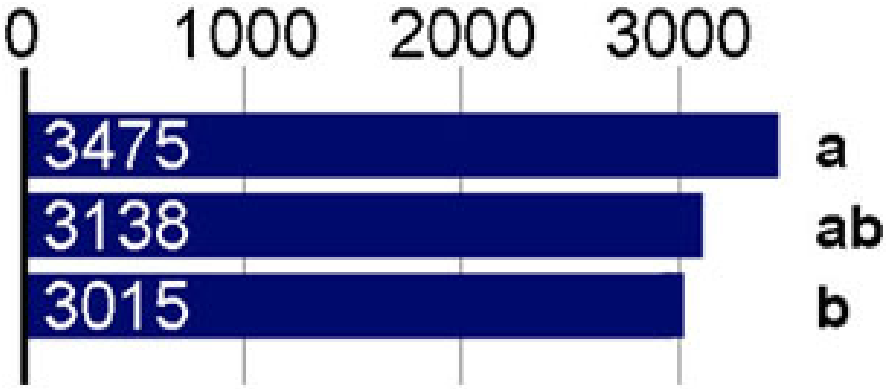
Impact of seeding rate on soybean agronomic performance under white mold pressure

Ingham County, Michigan (1999-2000)

	Seeding Rate seeds/ac	Disease Severity Index 0 to 100
7.5-inch row	174,015	42 a
7.5-inch row	226,624	53 b
30-inch row	174,015	50 ab



	Seeding Rate seeds/ac	Yield pounds per acre
7.5-inch row	174,015	3475 a
7.5-inch row	226,624	3138 ab
30-inch row	174,015	3015 b



Lee et al. 2005. Weed Technology 19:580-588.

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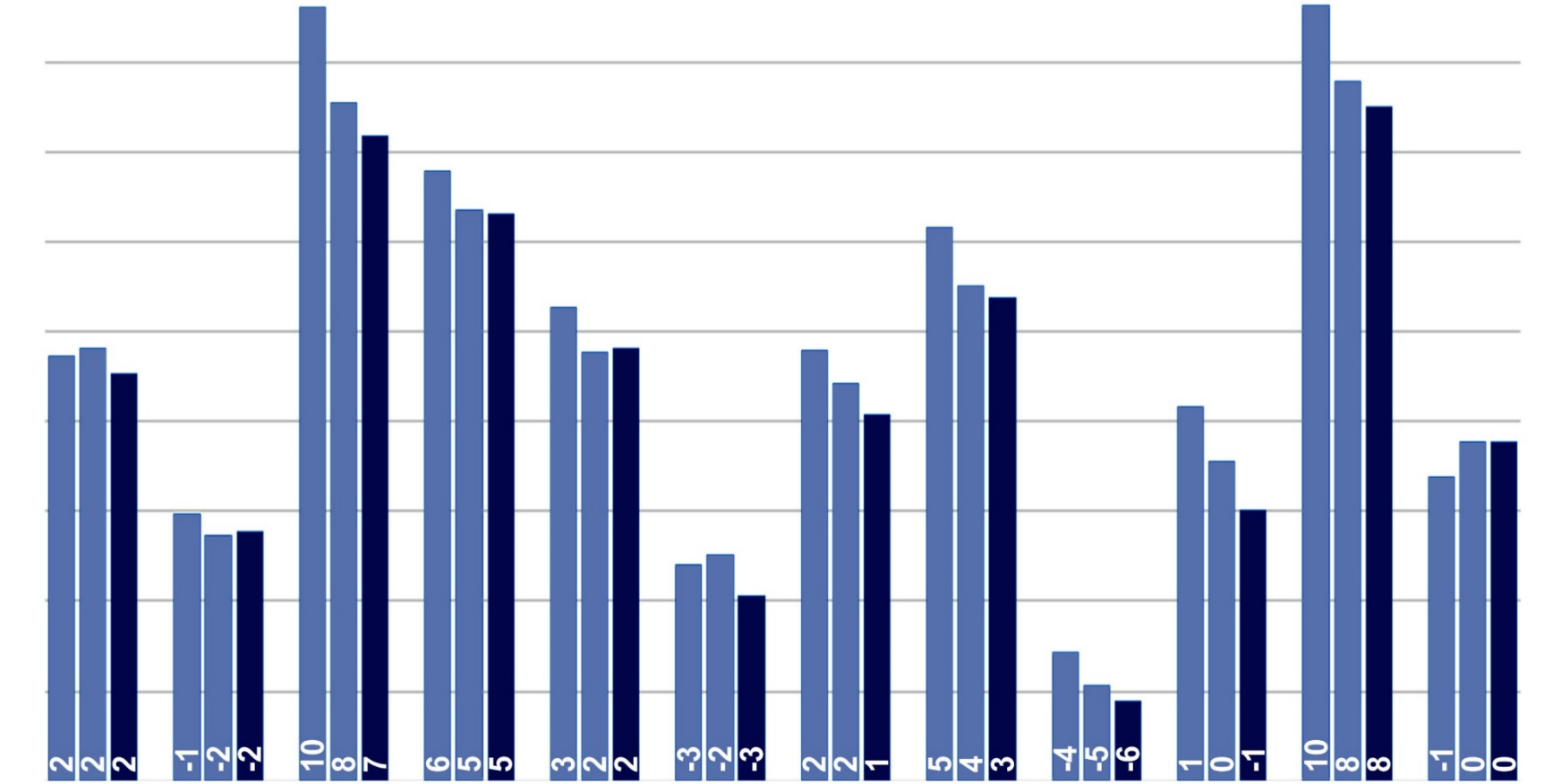
Oakes, ND (2015-2017) Combined analysis across 7-, 14-, 21- and 28-inch row spacing

Canopy closure (days before or after bloom initiation - 90% of plants at R1)



Seeding Rate (pure live seeds / acre)

132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000
Dairyland DSR-0711	Pioneer 90Y90	Dairyland DSR-0711	Dairyland DSR-0711	Dairyland DSR-0747	Dairyland DSR-0404	Dairyland DSR-0907	Pioneer P08T36R	Pioneer P07T50R	Pioneer P07T50R	Pioneer 90M80	Dairyland DSR-0988
maturity = 0.7	maturity = 0.9	maturity = 0.7	maturity = 0.7	maturity = 0.7	maturity = 0.4	maturity = 0.9	maturity = 0.8	maturity = 0.7	maturity = 0.7	maturity = 0.8	maturity = 0.9
2015	**2015**	**2016**	**2017**	**2015**	**2015**	**2017**	**2016**	**2015**	**2016**	**2016**	**2017**

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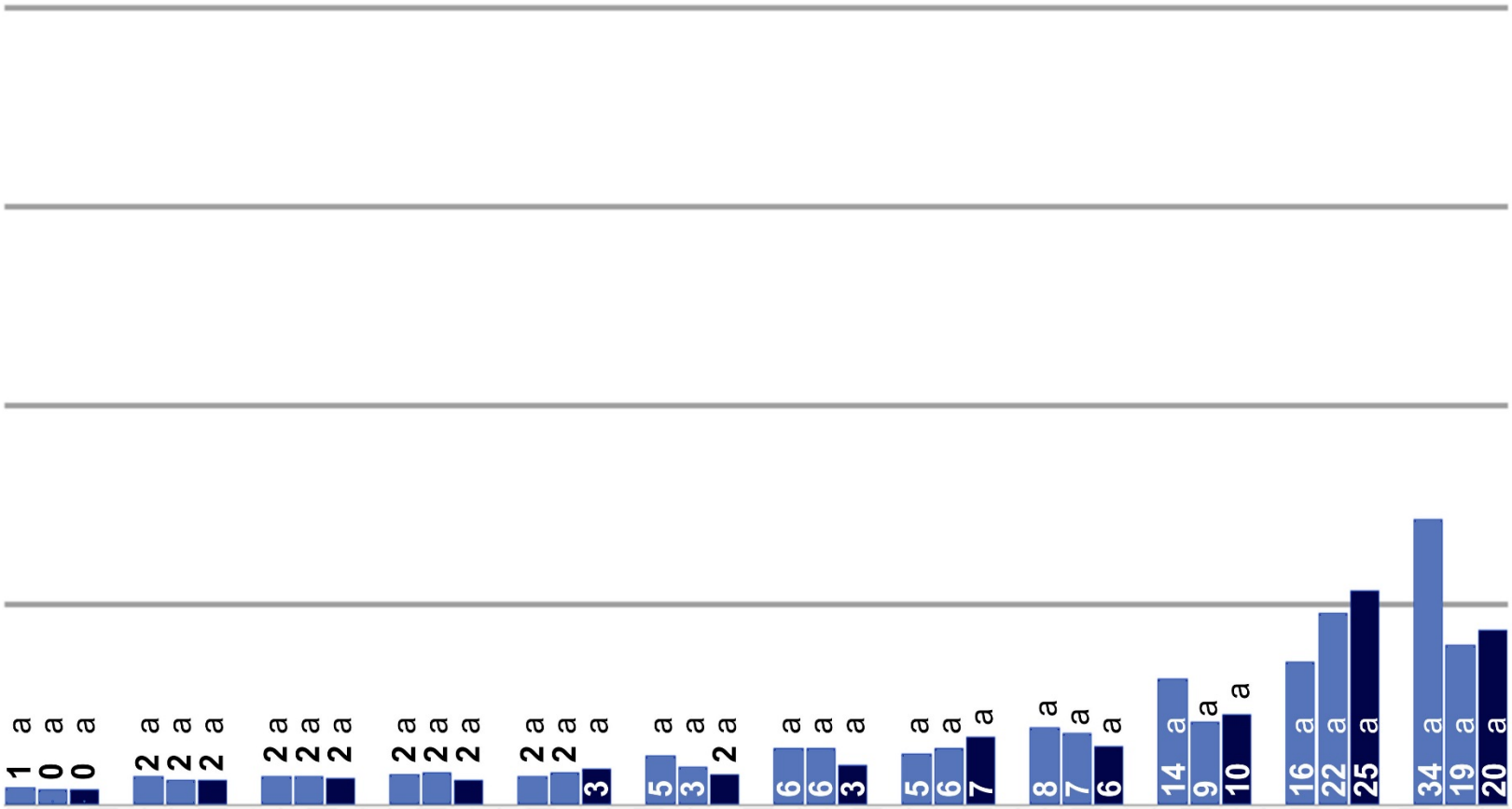
Oakes, ND (2015-2017) Combined analysis across 7-, 14-, 21- and 28-inch row spacing

White mold incidence (**% of plants;** R7 growth stage)



Seeding Rate (pure live seeds / acre)

132,000 165,000 198,000	Dairyland DSR-0711 maturity = 0.7 **2015**	Pioneer 90Y90 maturity = 0.9 **2015**	Dairyland DSR-0711 maturity = 0.7 **2016**	Dairyland DSR-0711 maturity = 0.7 **2017**	Dairyland DSR-0747 maturity = 0.7 **2015**	Dairyland DSR-0404 maturity = 0.4 **2015**	Dairyland DSR-0907 maturity = 0.9 **2017**	Pioneer P08T36R maturity = 0.8 **2016**	Pioneer P07T50R maturity = 0.7 **2015**	Pioneer P07T50R maturity = 0.7 **2016**	Pioneer 90M80 maturity = 0.8 **2016**	Dairyland DSR-0988 maturity = 0.9 **2017**
132,000	1 a	2 a	2 a	2 a	2 a	5 a	6 a	5 a	8 a	14 a	16 a	34 a
165,000	0 a	2 a	2 a	2 a	2 a	3 a	6 a	6 a	7 a	9 a	22 a	19 a
198,000	0 a	2 a	2 a	2 a	3 a	2 a	3 a	7 a	6 a	10 a	25 a	20 a

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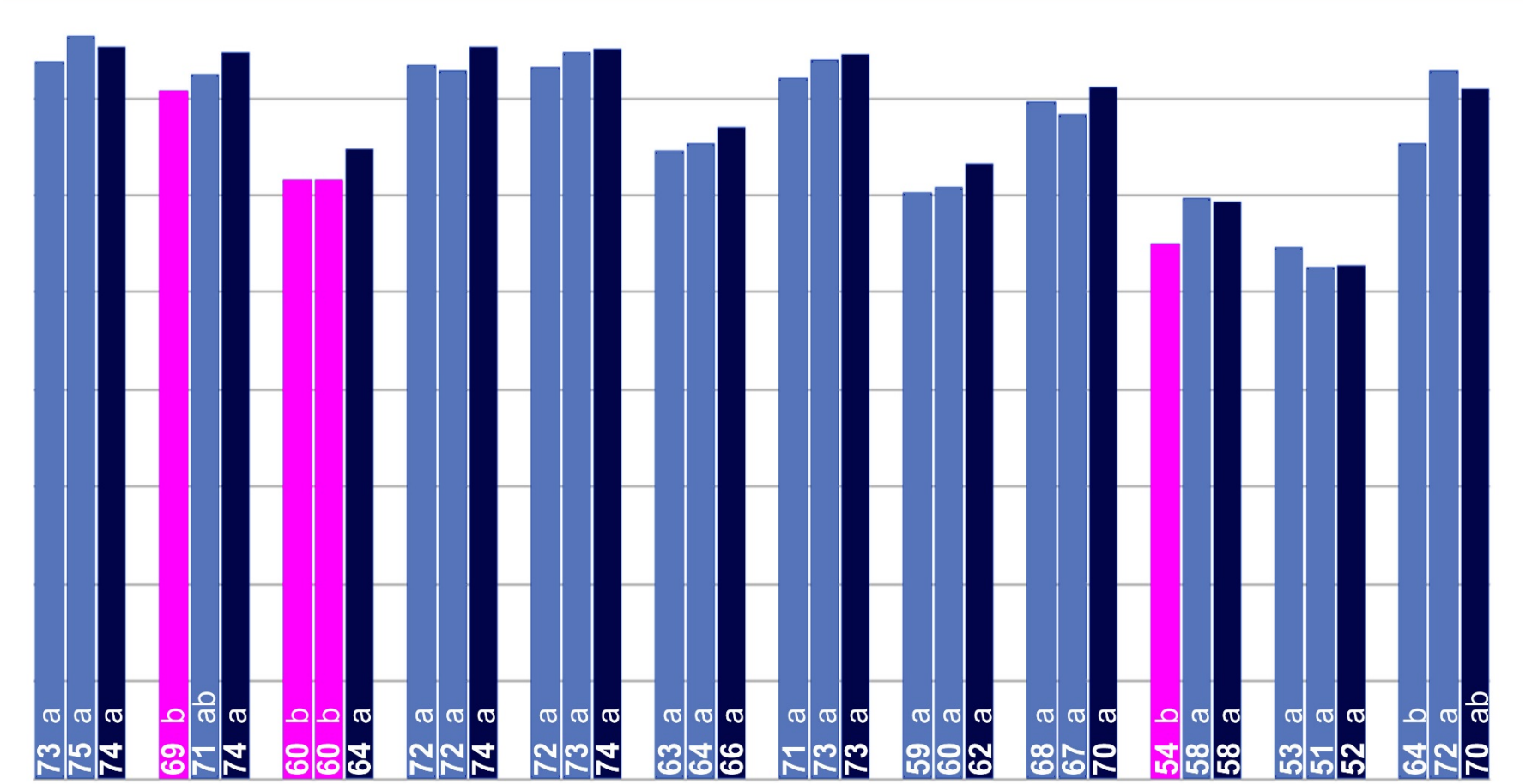
Oakes, ND (2015-2017) Combined analysis across 7-, 14-, 21- and 28-inch row spacing

Soybean Yield (bushels/acre; 13% moisture)



Seeding Rate (pure live seeds / acre)

132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000	132,000 165,000 198,000
Dairyland DSR-0711	Pioneer 90Y90	Dairyland DSR-0711	Dairyland DSR-0711	Dairyland DSR-0747	Dairyland DSR-0404	Dairyland DSR-0907	Pioneer P08T36R	Pioneer P07T50R	Pioneer P07T50R	Pioneer 90M80	Dairyland DSR-0988
maturity = 0.7	maturity = 0.9	maturity = 0.7	maturity = 0.7	maturity = 0.7	maturity = 0.4	maturity = 0.9	maturity = 0.8	maturity = 0.7	maturity = 0.7	maturity = 0.8	maturity = 0.9
2015	**2015**	**2016**	**2017**	**2015**	**2015**	**2017**	**2016**	**2015**	**2016**	**2016**	**2017**

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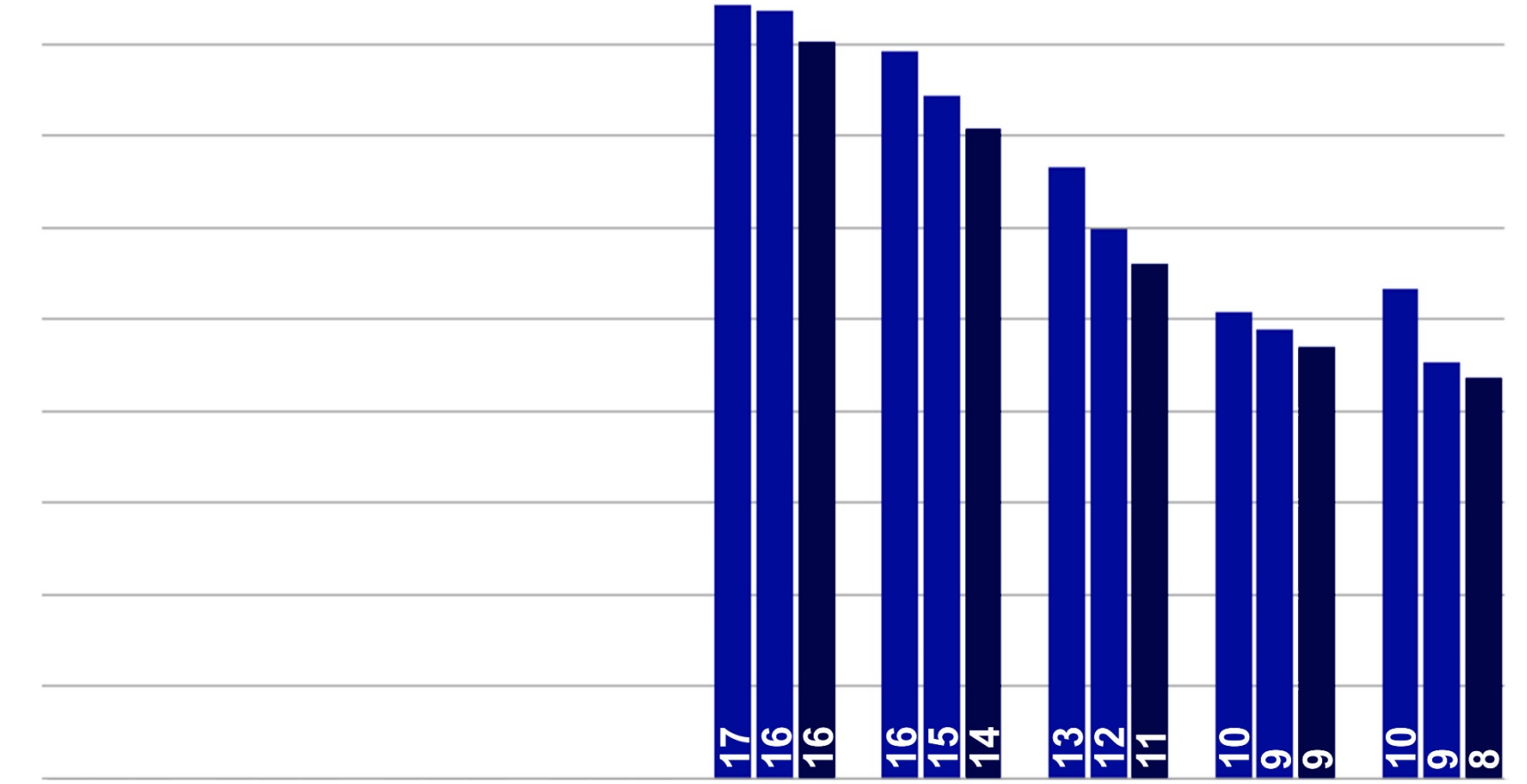
Carrington, ND (2015, 2017) Combined analysis across 7-, 14-, 21- and 28-inch row spacing

Canopy closure (days before or after bloom initiation - 90% of plants at R1)



Seeding rate (pure live seeds / acre)

132,000	165,000	198,000
Pioneer P06T28R		
maturity = 0.6		
2017		
Pioneer P08T96R		
maturity = 0.8		
2017		
Pioneer P05T24R		
maturity = 0.5		
2017		
Pioneer P08T59R		
maturity = 0.8		
2017		
Pioneer P06T28R		
maturity = 0.6		
2015		
Pioneer 90Y50		
maturity = 0.5		
2015		
ProSeed 20-70		
maturity = 0.7		
2015		
Mycogen 5B066		
maturity = 0.6		
2015		
Mycogen 5B080		
maturity = 0.8		
2015		

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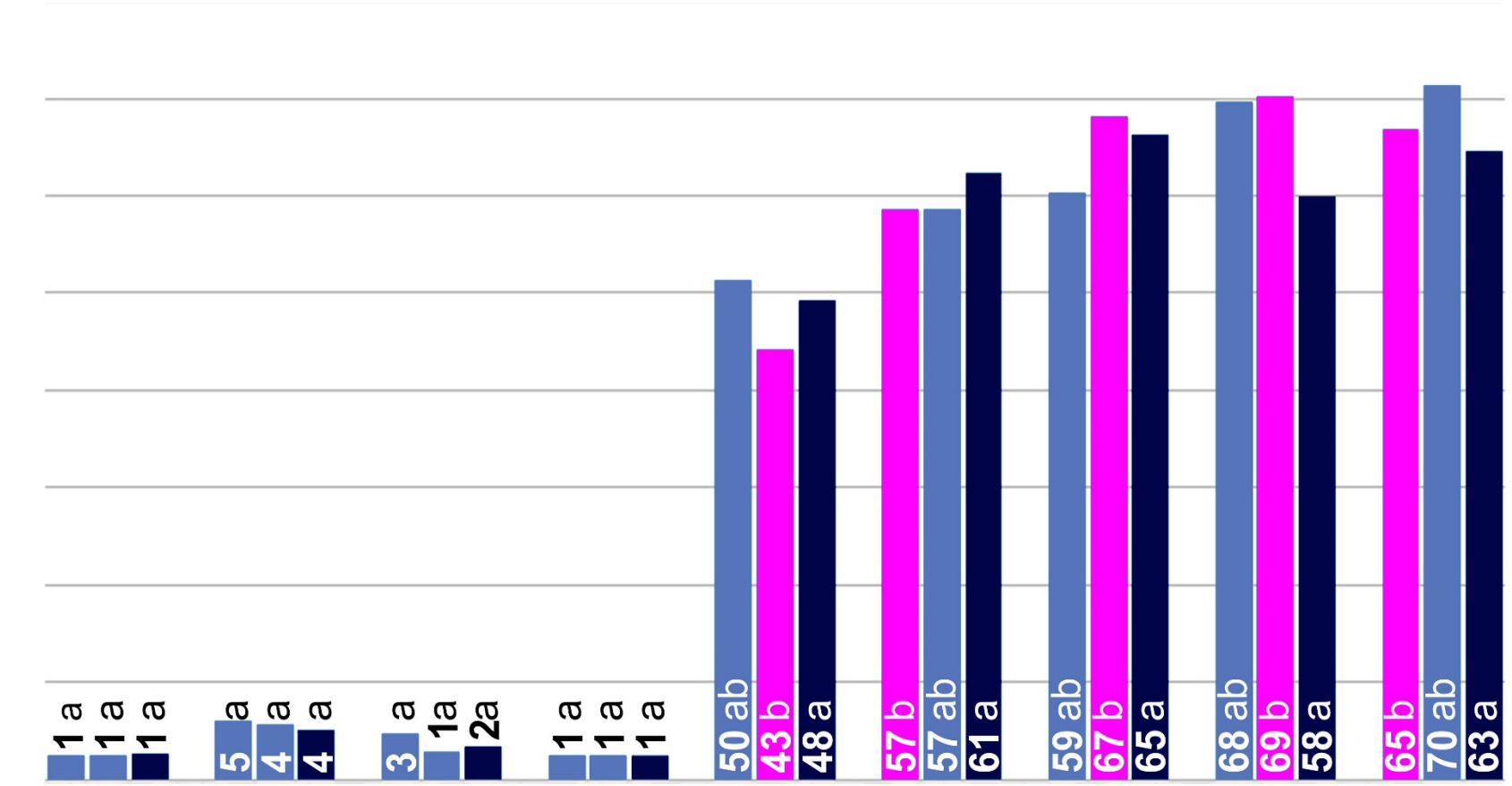
Carrington, ND (2015, 2017) Combined analysis across 7-, 14-, 21- and 28-inch row spacing

White mold incidence (% of plants; R7 growth stage)



Seeding rate (pure live seeds / acre)

132,000	165,000	198,000	Variety	Maturity	Year
1 a	1 a	1 a	Pioneer P06T28R	maturity = 0.6	2017
5 a	4 a	4 a	Pioneer P08T96R	maturity = 0.8	2017
3 a	1a	2a	Pioneer P05T24R	maturity = 0.5	2017
1 a	1 a	1 a	Pioneer P08T59R	maturity = 0.8	2017
50 ab	43 b	48 a	Pioneer P06T28R	maturity = 0.6	2015
57 b	57 ab	61 a	Pioneer 90Y50	maturity = 0.5	2015
59 ab	67 b	65 a	ProSeed 20-70	maturity = 0.7	2015
68 ab	69 b	58 a	Mycogen 5B066	maturity = 0.6	2015
65 b	70 ab	63 a	Mycogen 5B080	maturity = 0.8	2015

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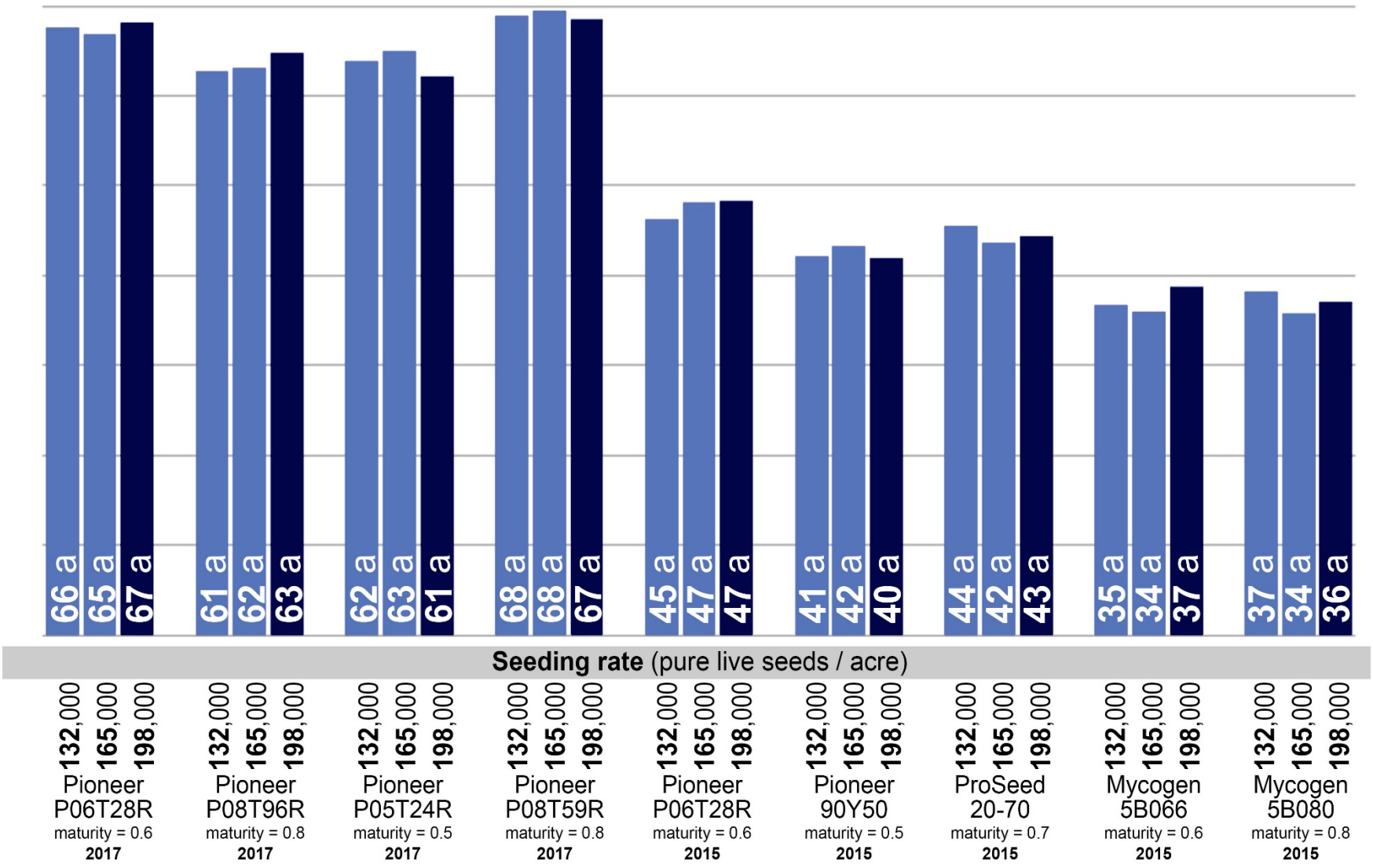
Carrington, ND (2015, 2017) Combined analysis across 7-, 14-, 21- and 28-inch row spacing

Soybean Yield (bushels/acre; 13% moisture)

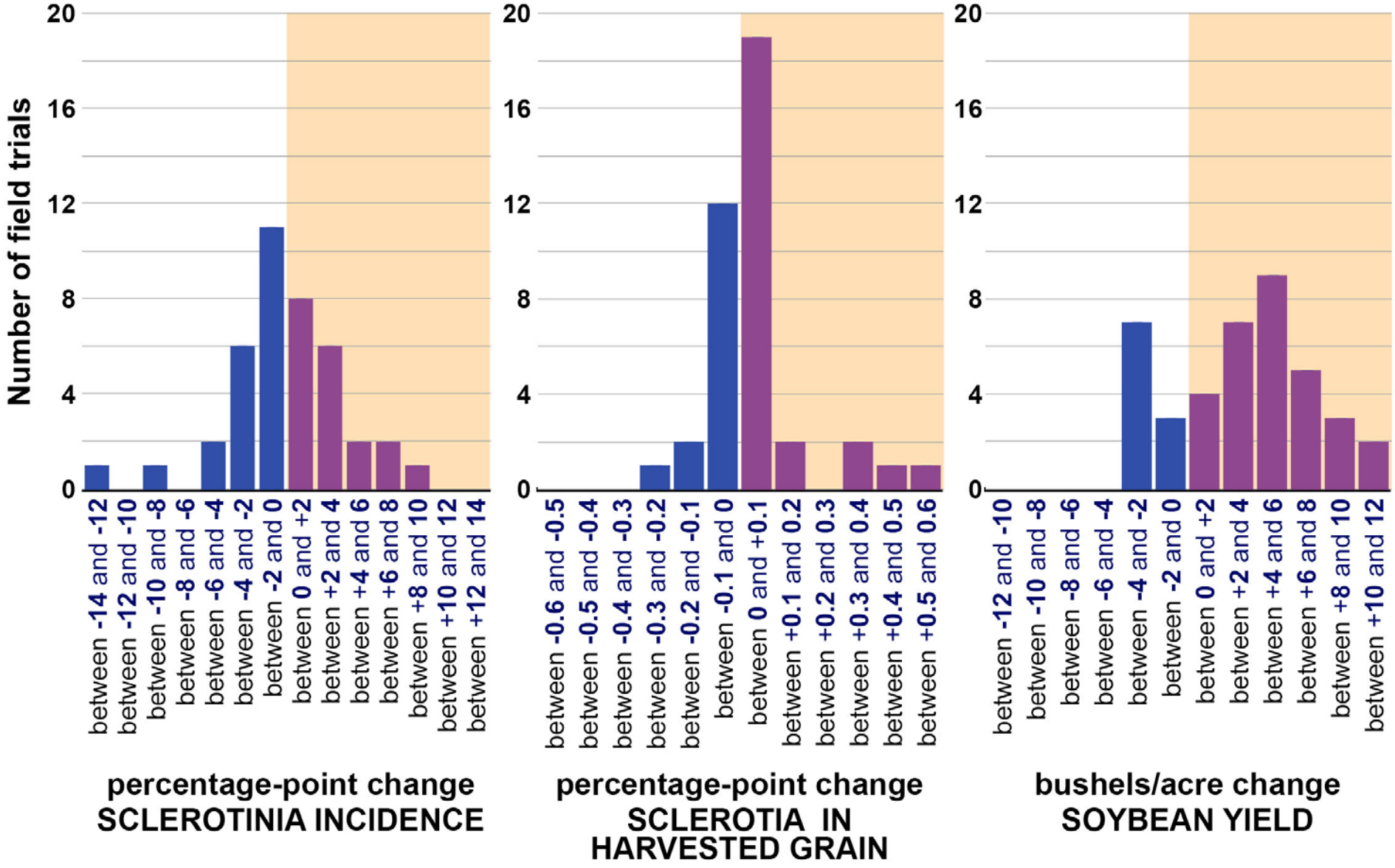


Impact of increasing seeding rate:

132,000 to 198,000 pure live seeds/ac

Soybean maturity: 00 and 0 **Locations:** Carrington, Hofflund, Langdon, and Oakes, ND **Years:** 2015-2017

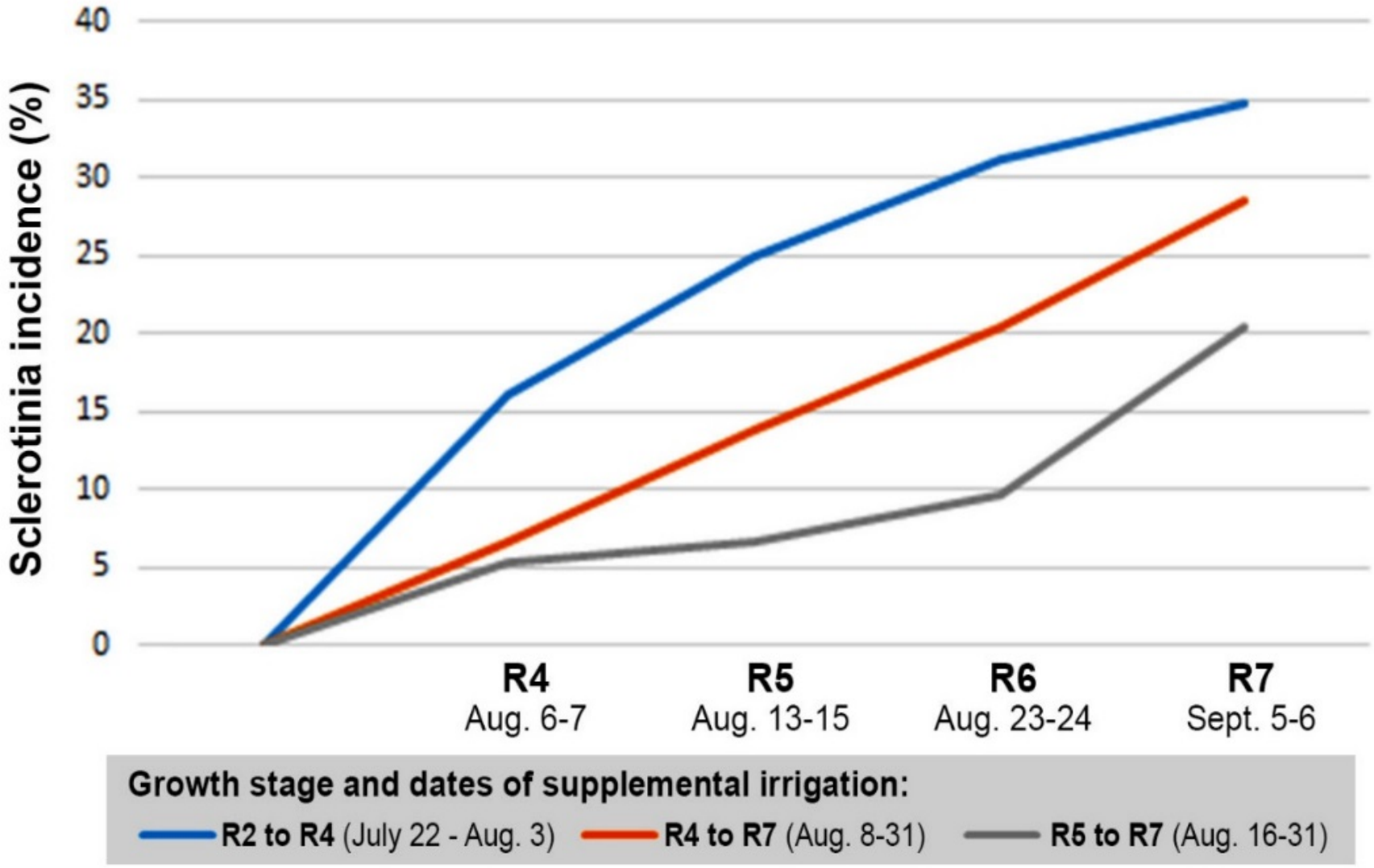
Combined analysis across four row spacings (7, 14, 21 and 28 inches or 7.5, 15, 22.5 and 30 inches)



Impact of increasing seeding rate:

132,000, 165,000 vs. 198,000 pure live seeds/ac

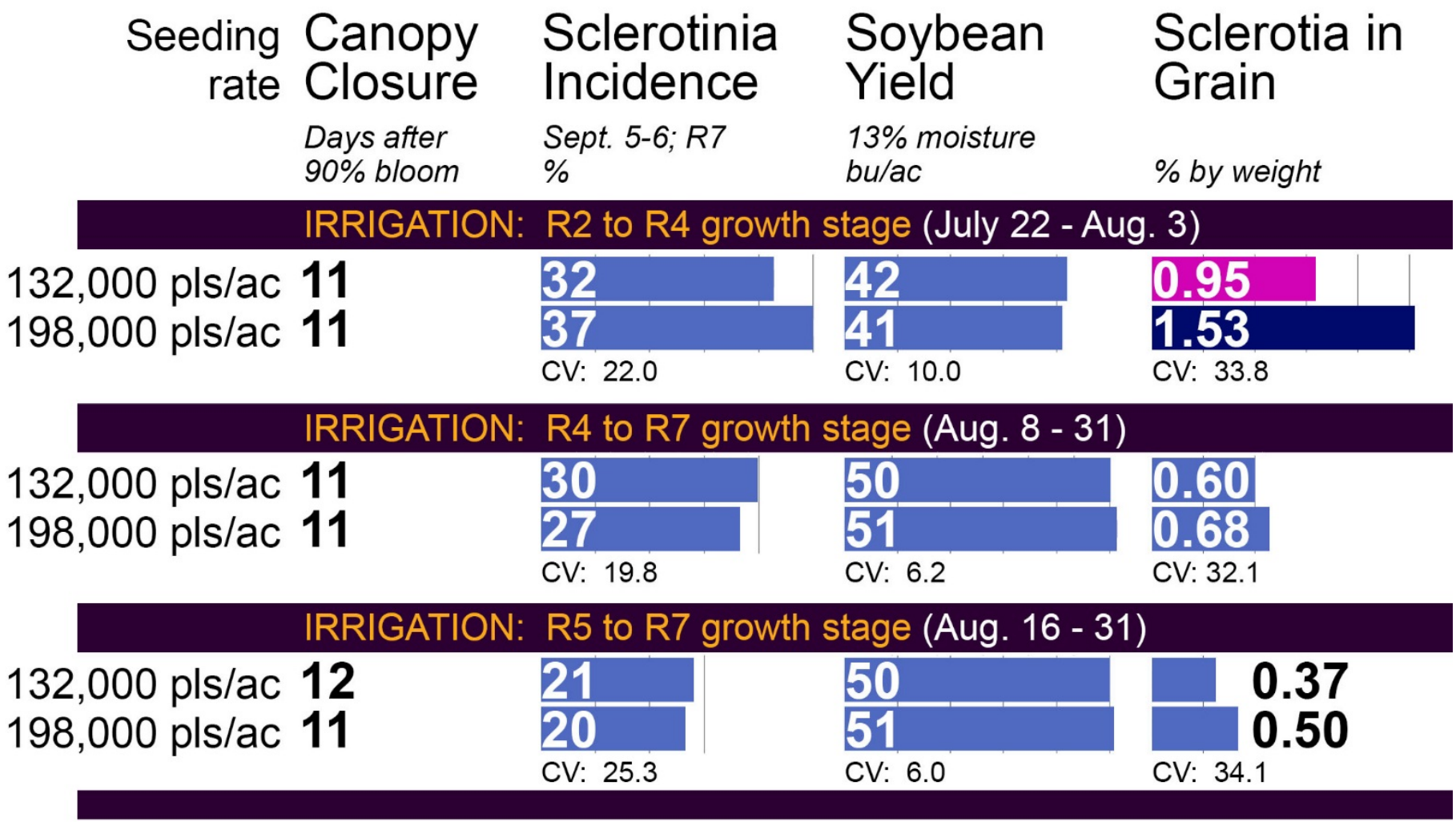
Soybean maturity: 0.3 **Location:** Carrington, ND **Year:** 2015
Combined analysis across four row spacings (7, 14, 21 and 28 inches)



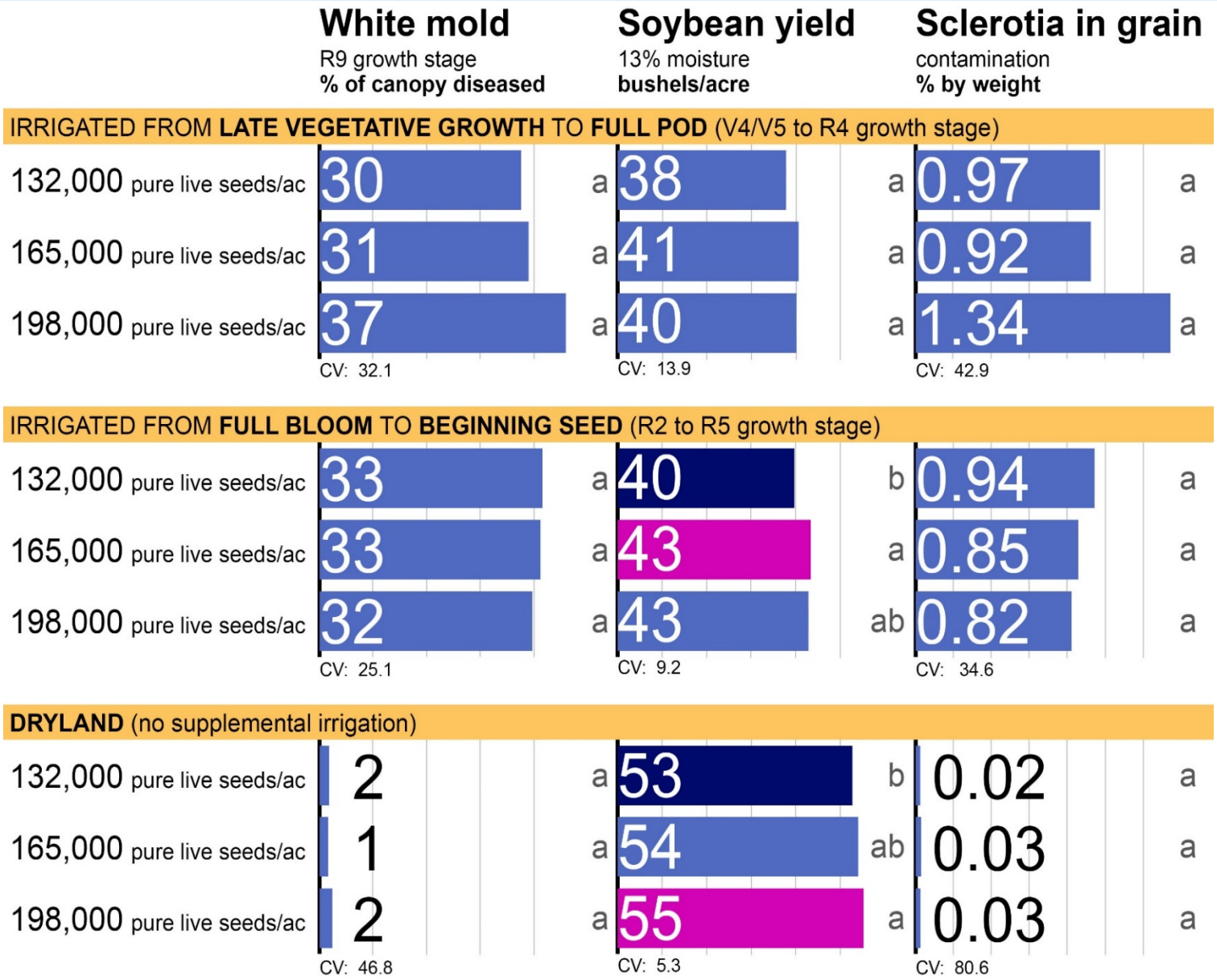
Impact of increasing seeding rate:

132,000, 165,000 vs. 198,000 pure live seeds/ac

Soybean maturity: 0.3 **Location:** Carrington, ND **Year:** 2015
Combined analysis across four row spacings (7, 14, 21 and 28 inches)



Impact of increasing seeding rate:
132,000, 165,000 vs. 198,000 pure live seeds/ac



Soybean maturity:
0.7

Location:
Carrington, ND

Year: 2017

Combined analysis across four row spacings:
7, 14, 21, 28 in.

Optimizing planting rate

Impact of seeding rate on white mold:

- Within the range of seeding rates evaluated in this study (132,000 to 198,000 pure live seeds/ac), **seeding rate generally had little or no effect on white mold.**

- *Possible exception:* Higher seeding rates were associated with a modest increase in white mold when conditions favored disease at canopy closure.

- Different results may obtained from seeding rates outside of the range tested in this study.




Thank You!

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North Dakota Soybean Council
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Northarvest Bean Growers Association
North Dakota Crop Protection Product Registration and Harmonization Board

NORTHARVEST BEANS

North Dakota Soybean Council
Our World Is Growing.

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