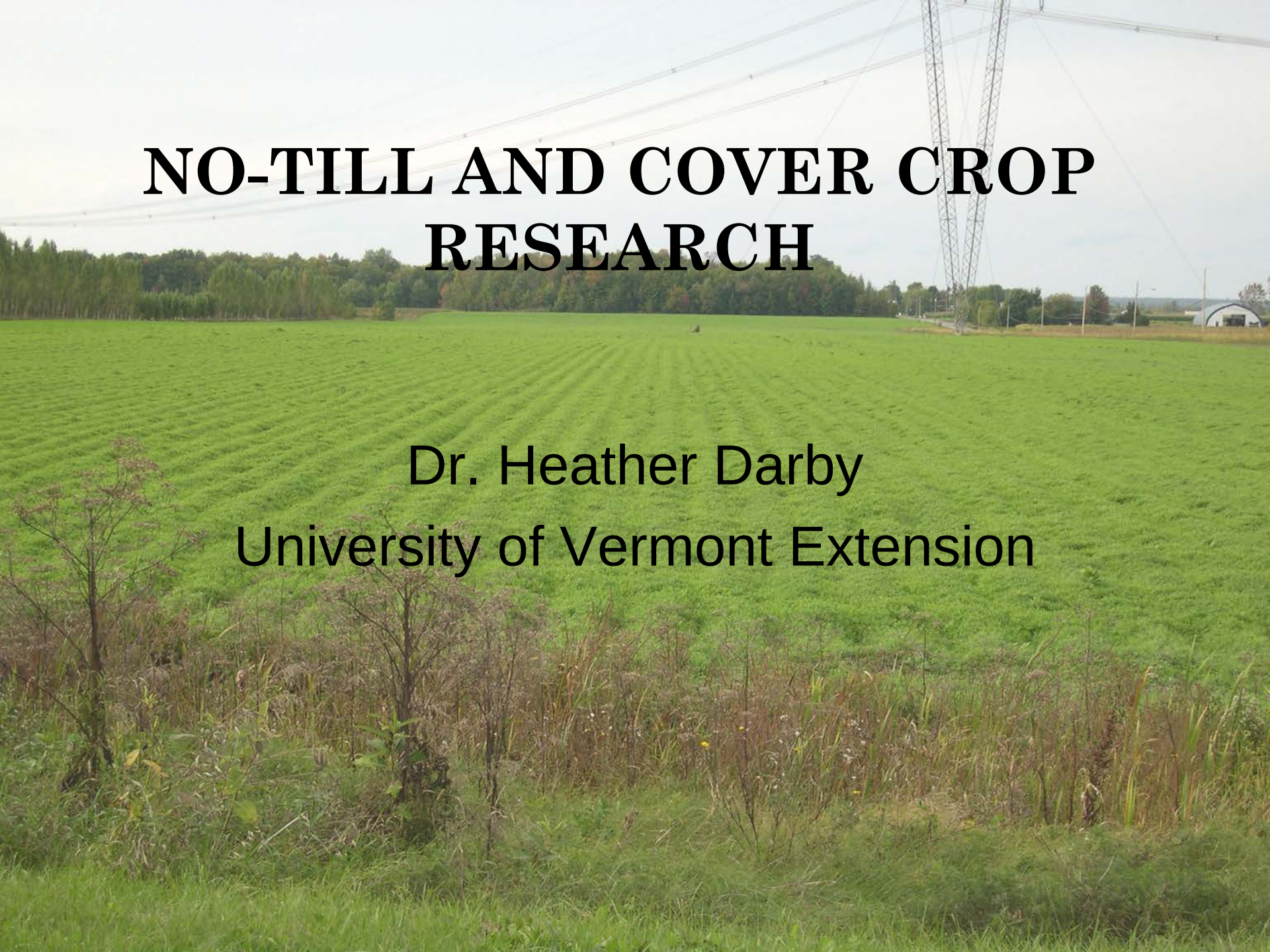


NO-TILL AND COVER CROP RESEARCH

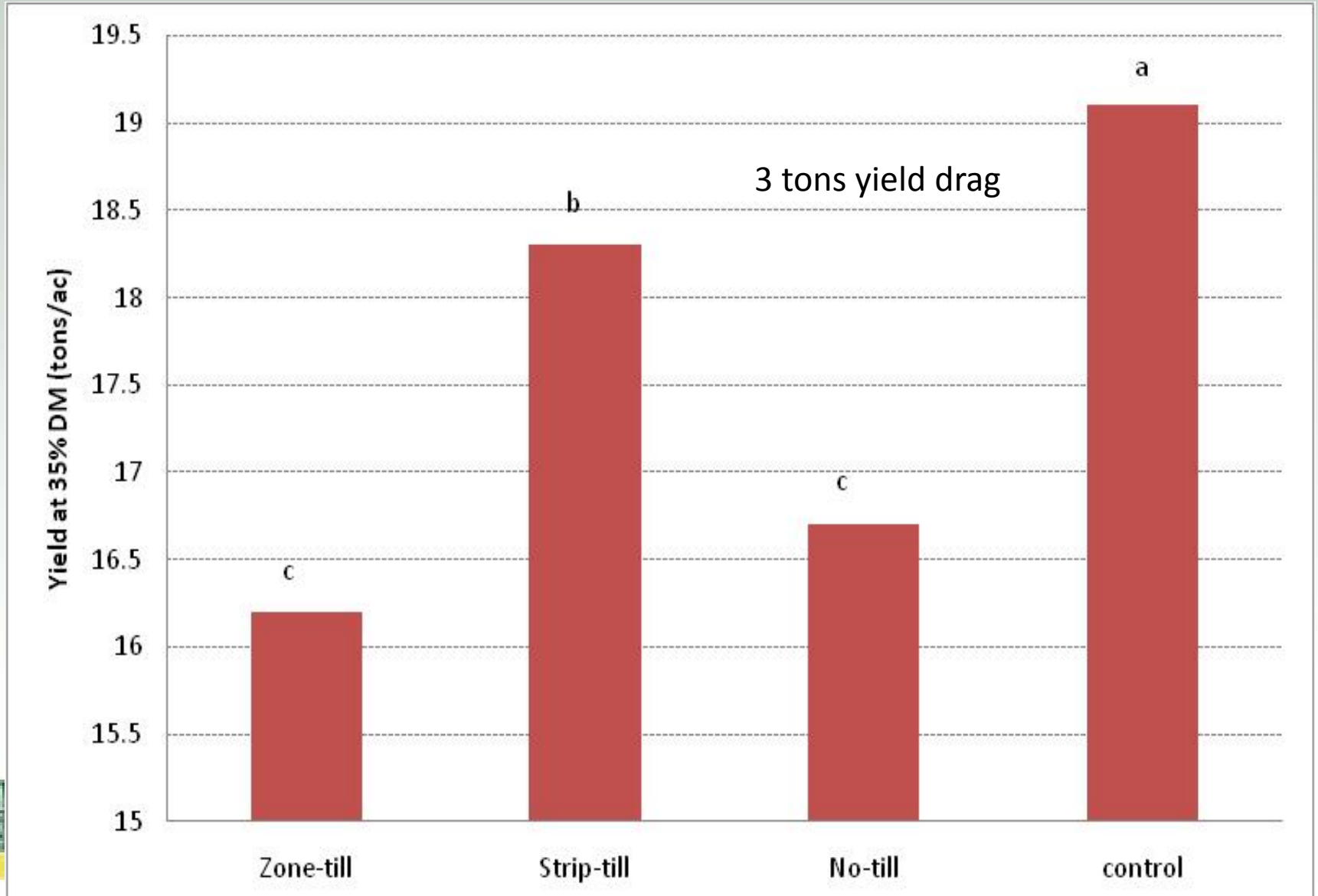
Dr. Heather Darby

University of Vermont Extension

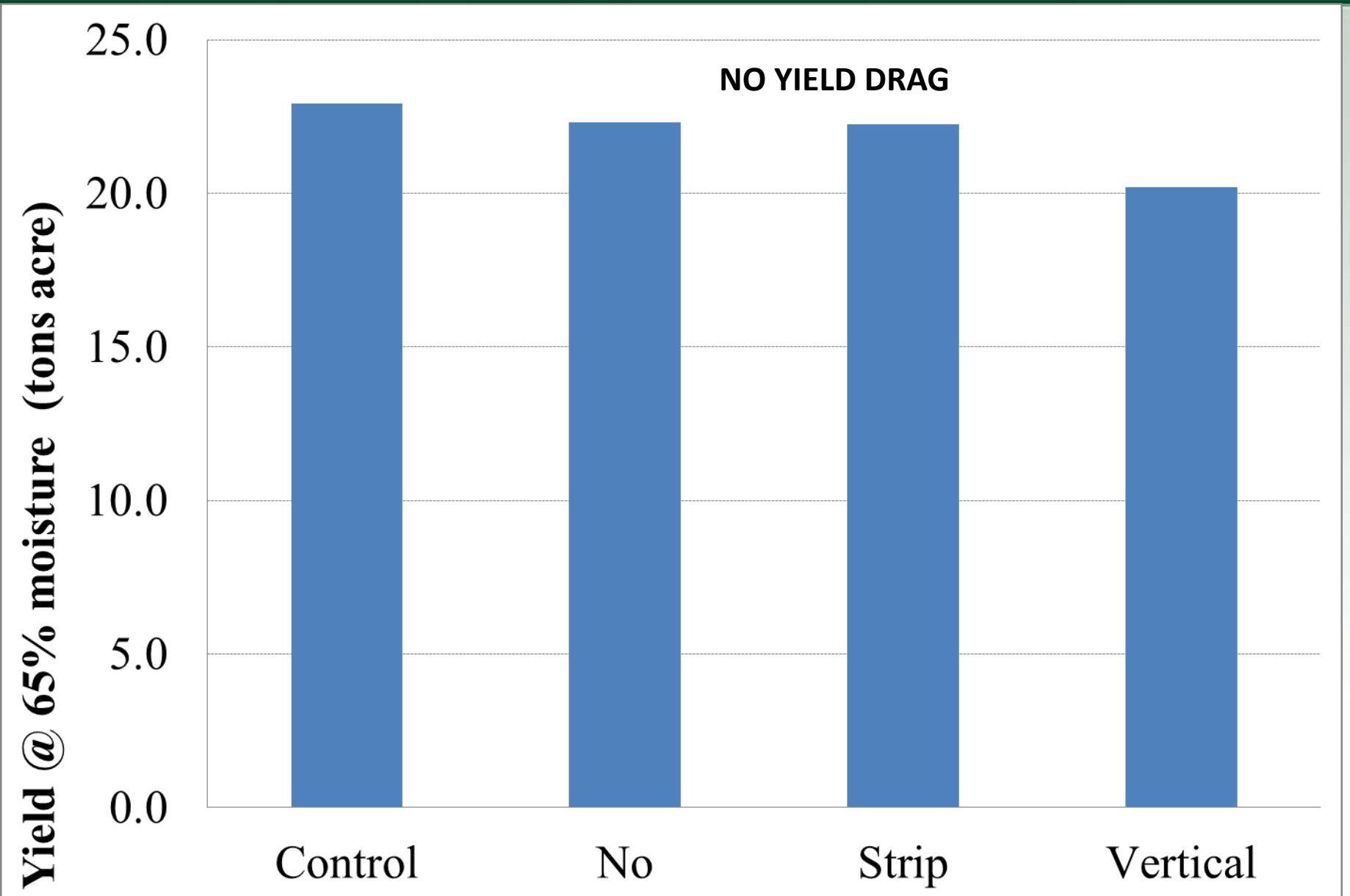
Education

Education

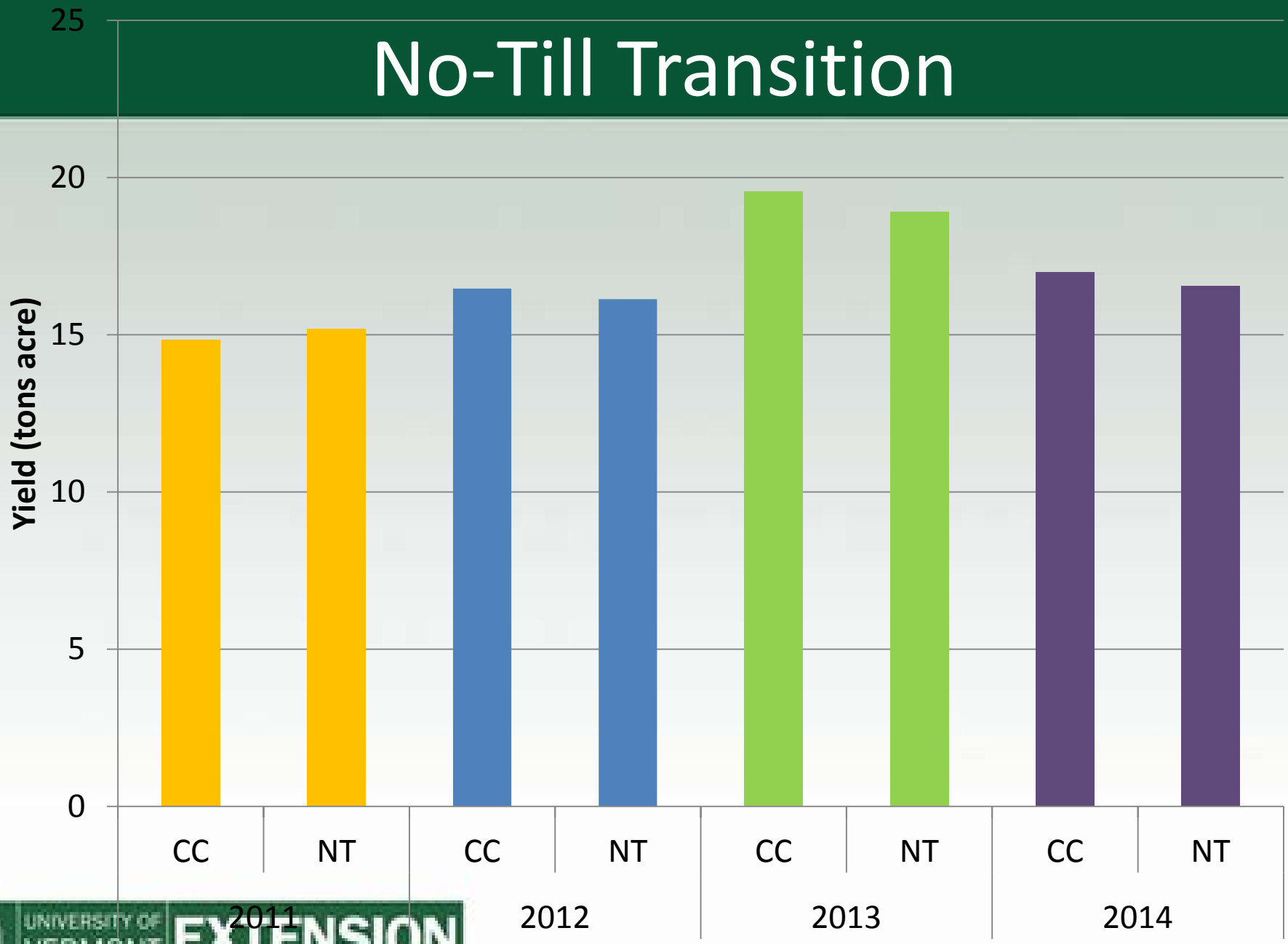
No-Till Transition - 2010



No-Till -2014

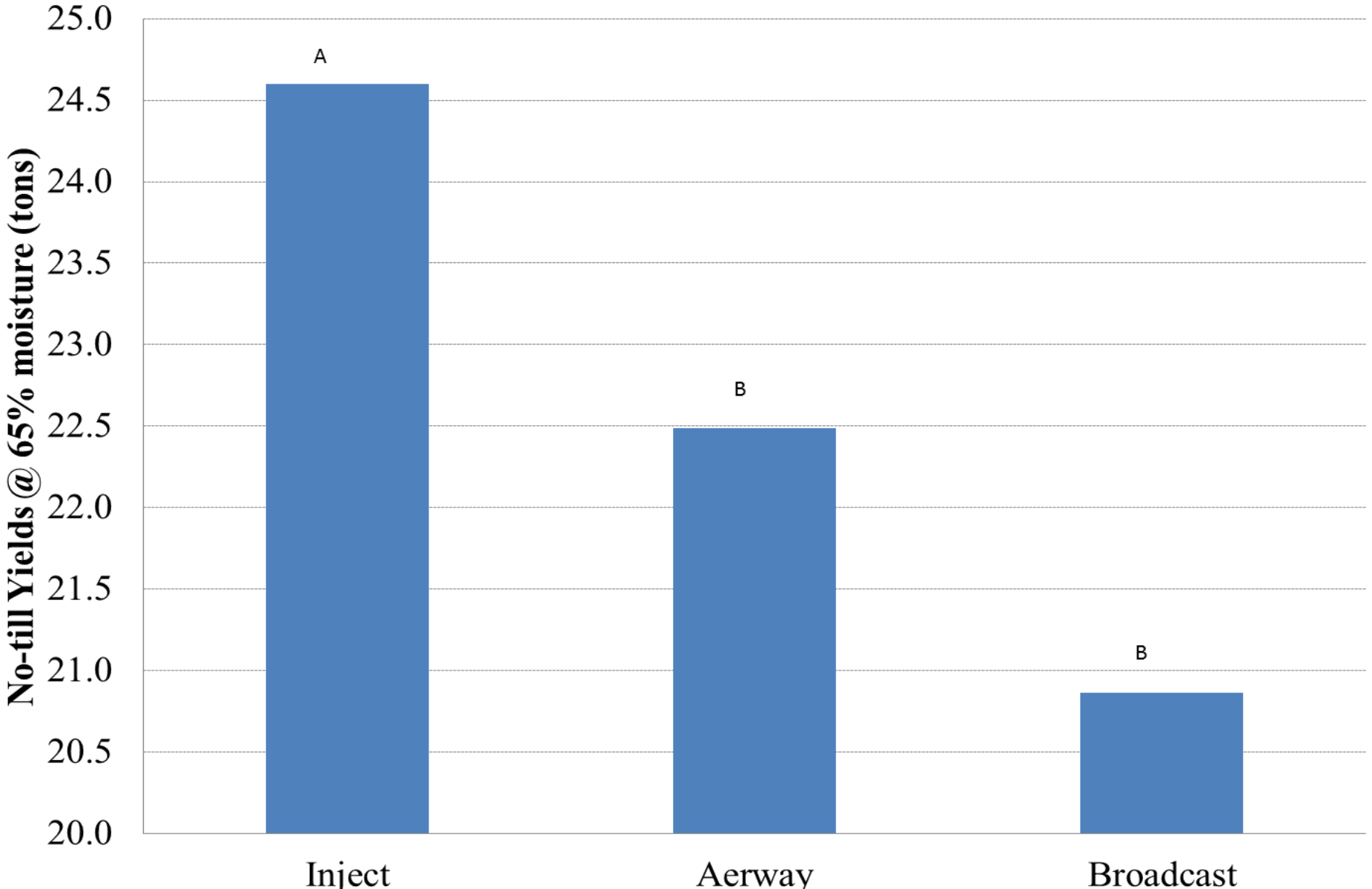

NO YIELD DRAG
25.0
20.0
15.0
10.0
5.0
0.0
Yield @ 65% moisture (tons acre)
Control
No
Strip
Vertical

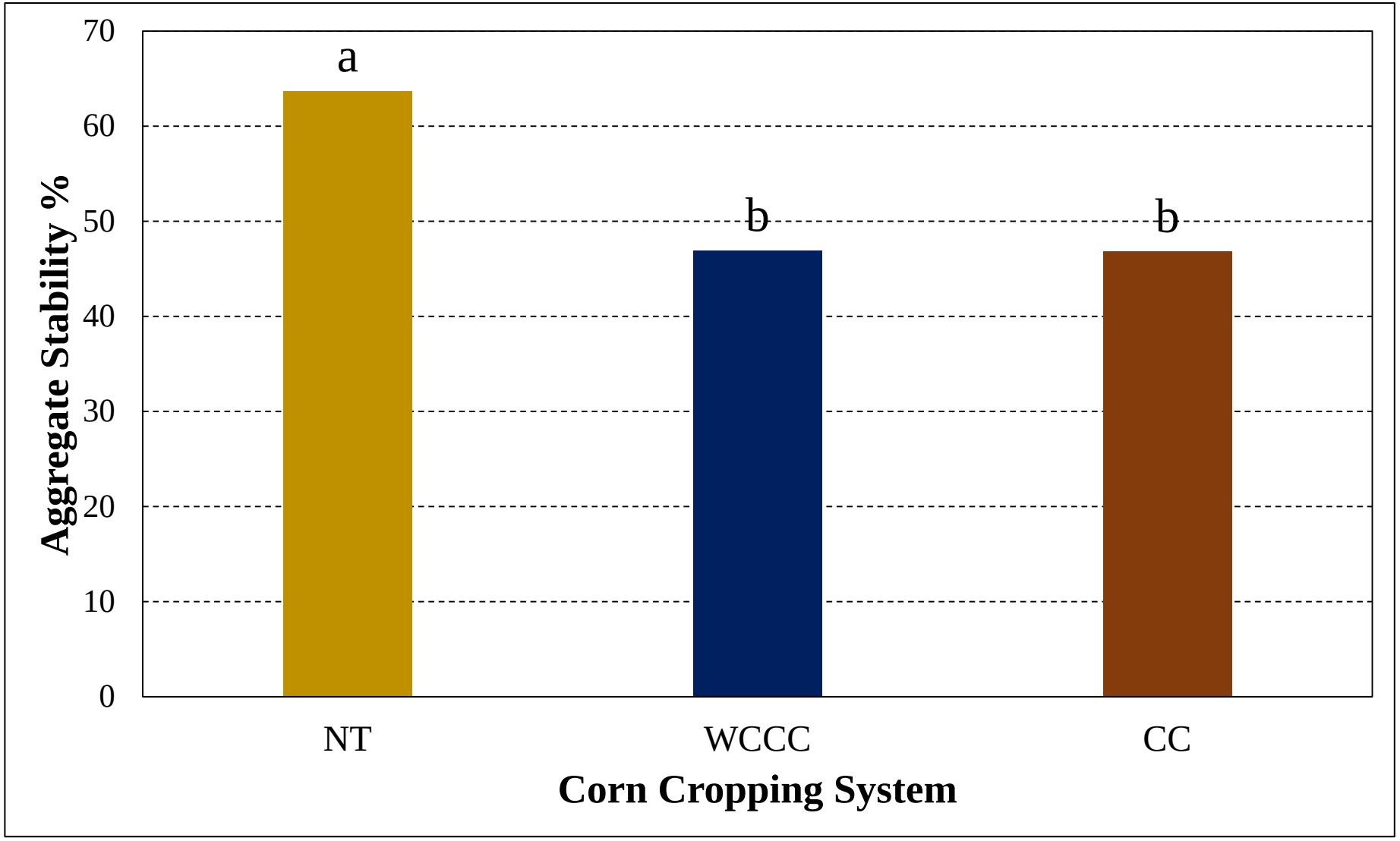
No-Till Transition



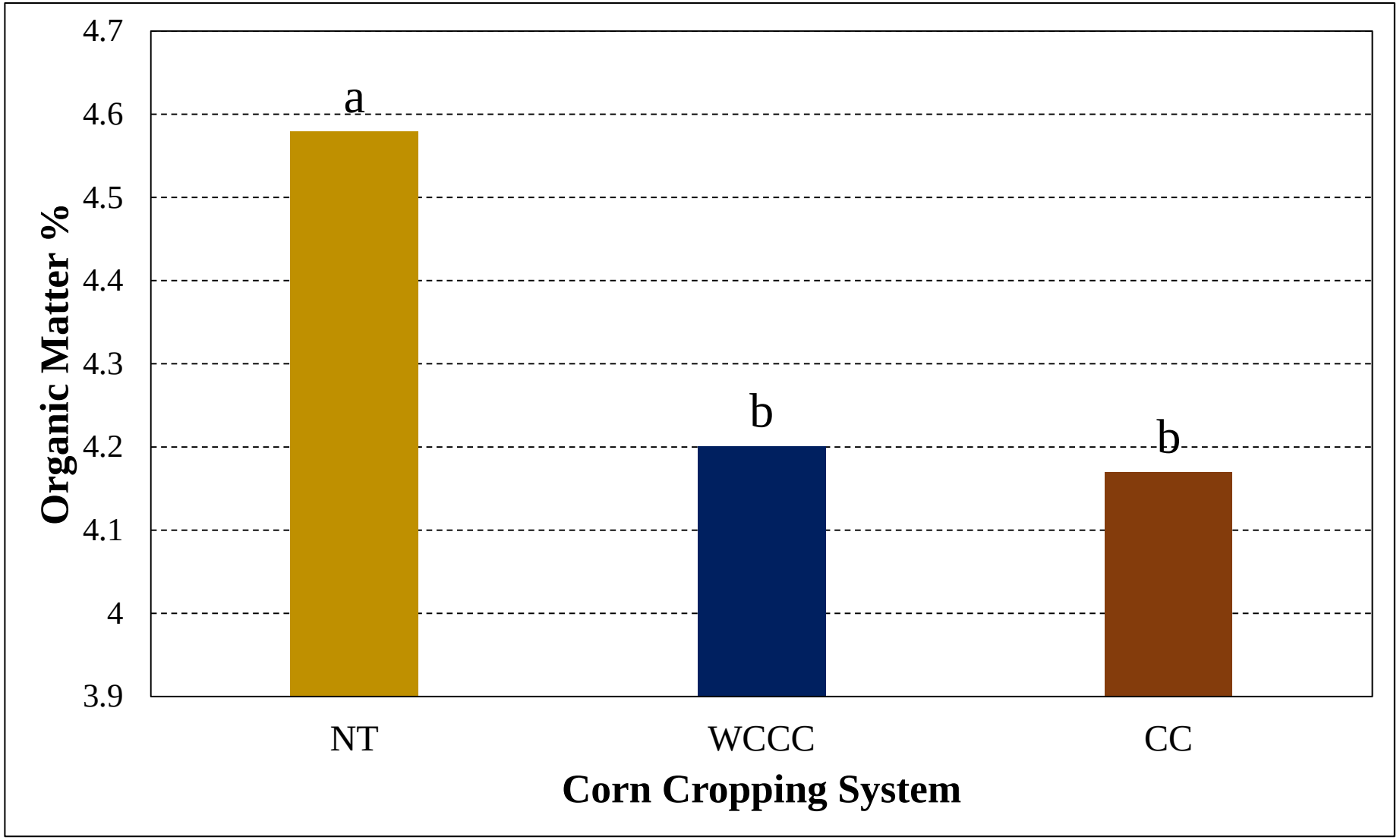
UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

Manure Management



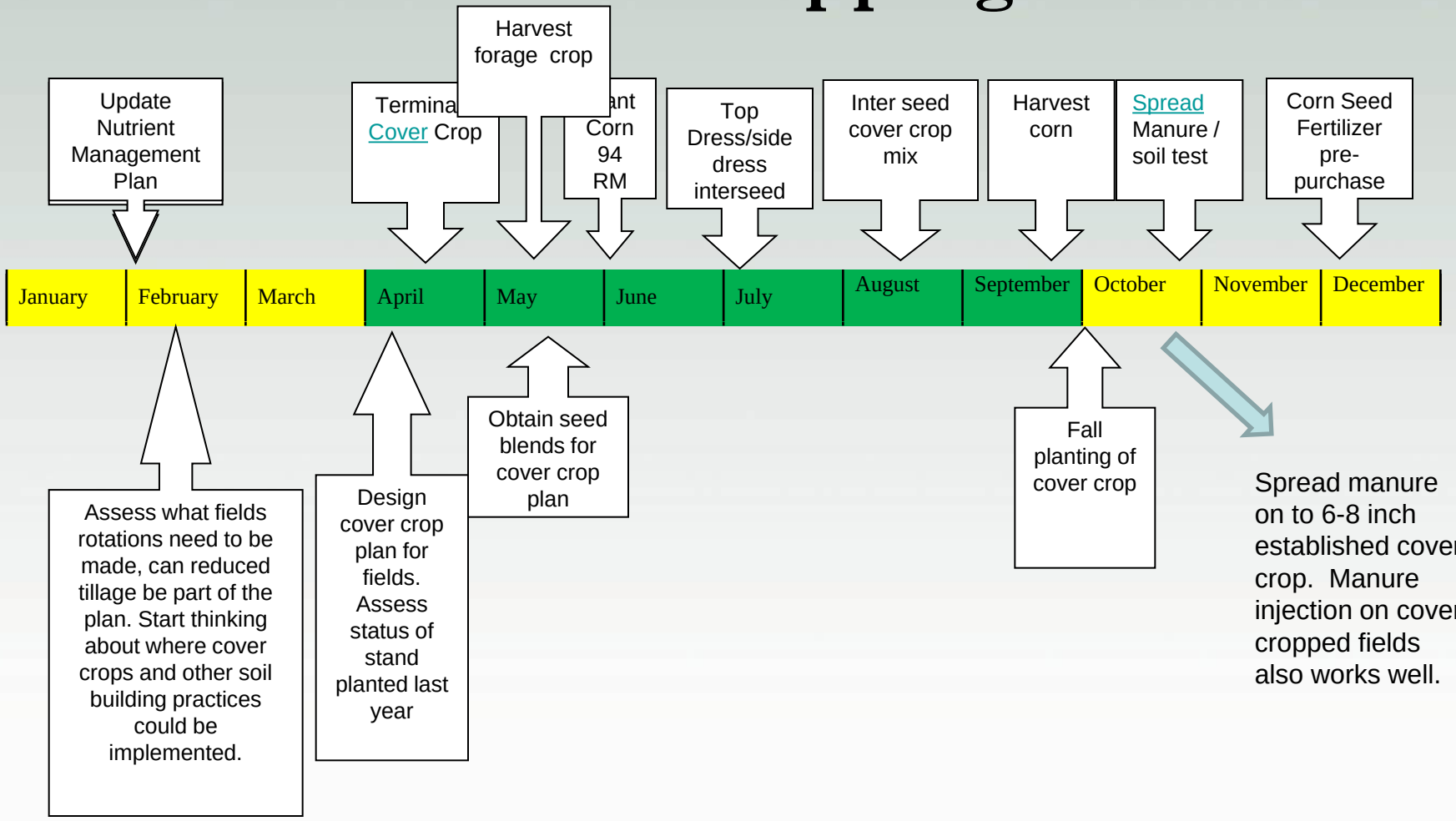


Aggregate Stability %
LSD: 3.30



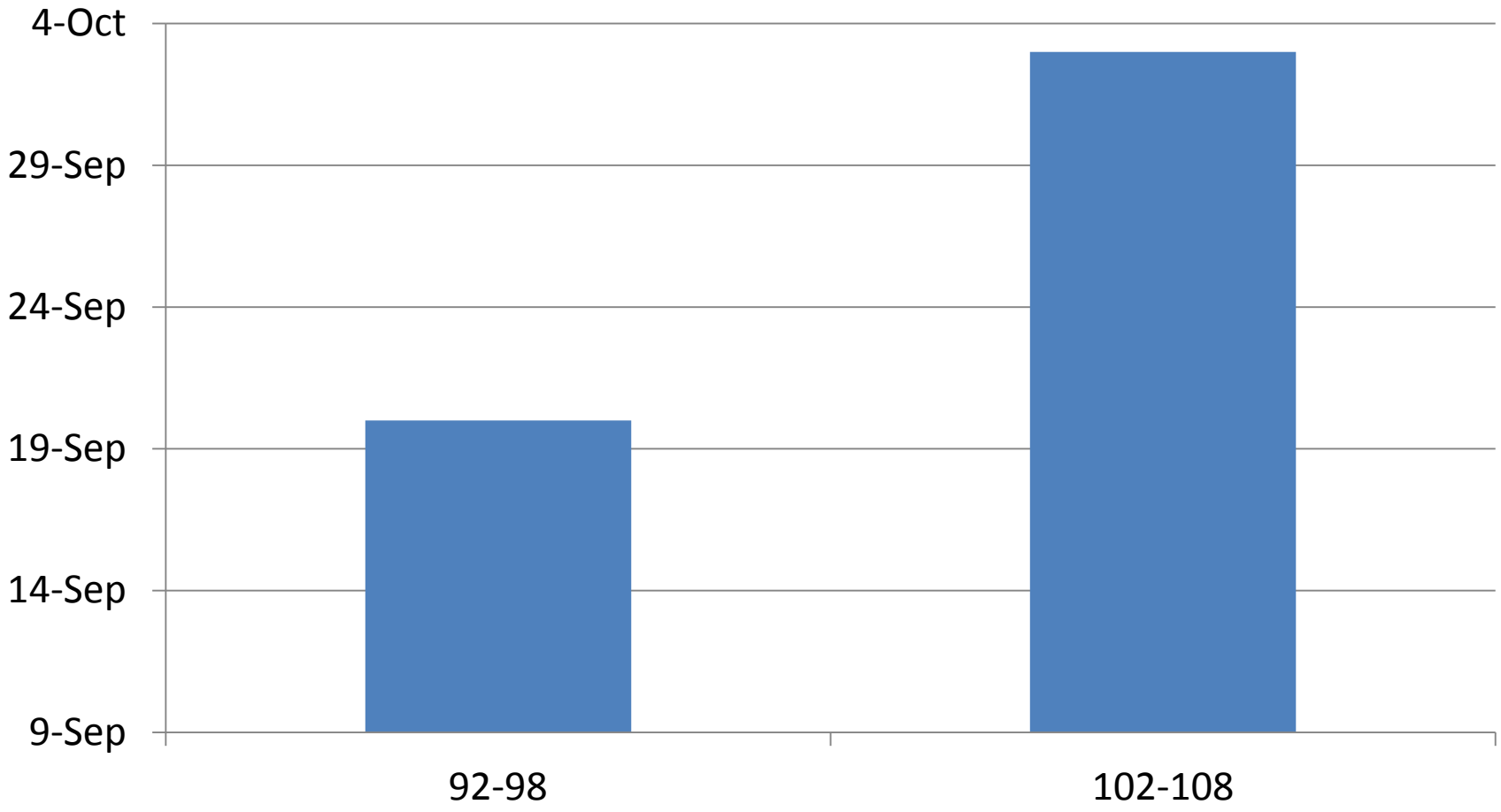
Organic Matter %
LSD: 0.14

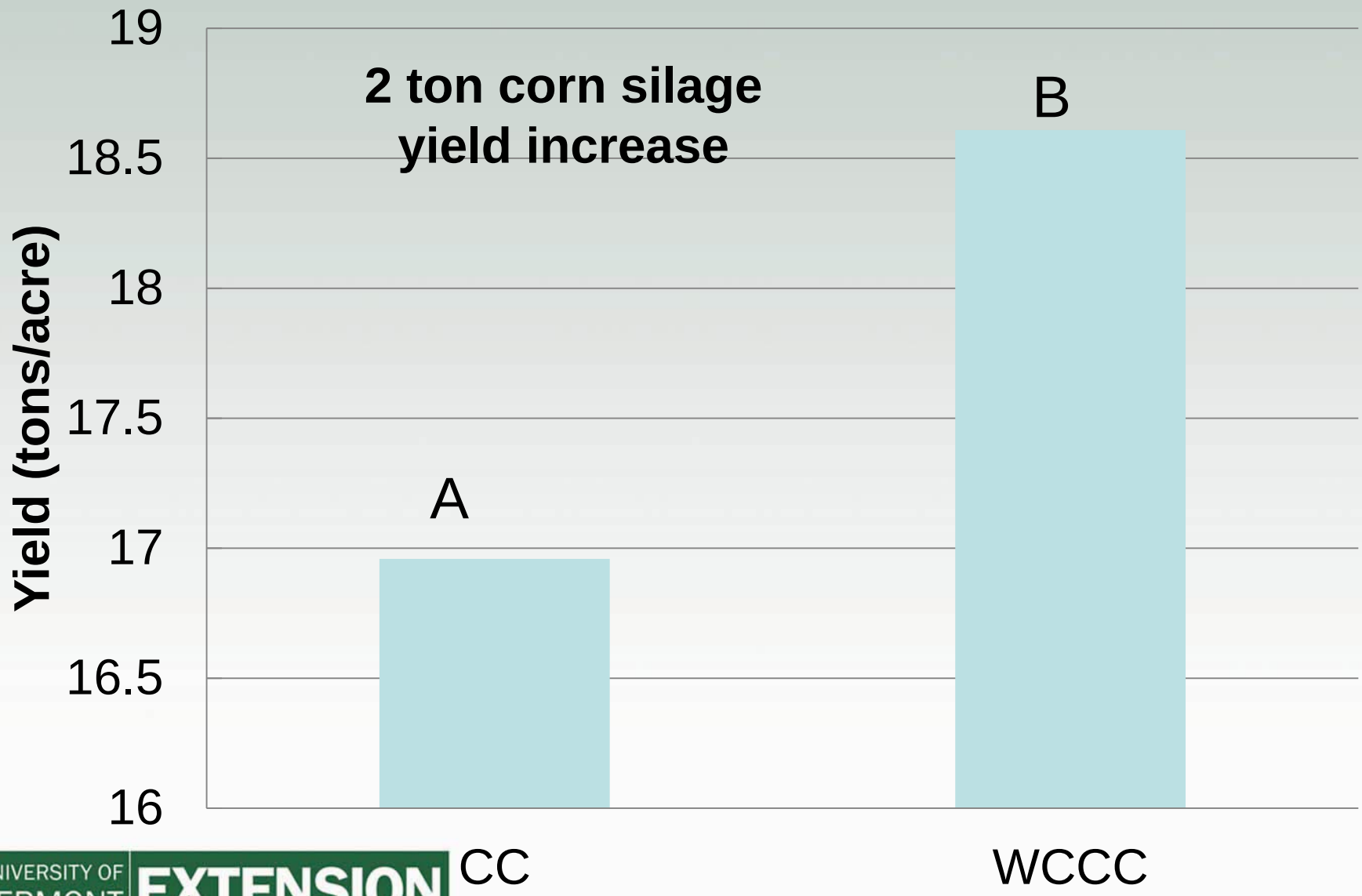
12 Month Cropping System for CoverCropping



UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

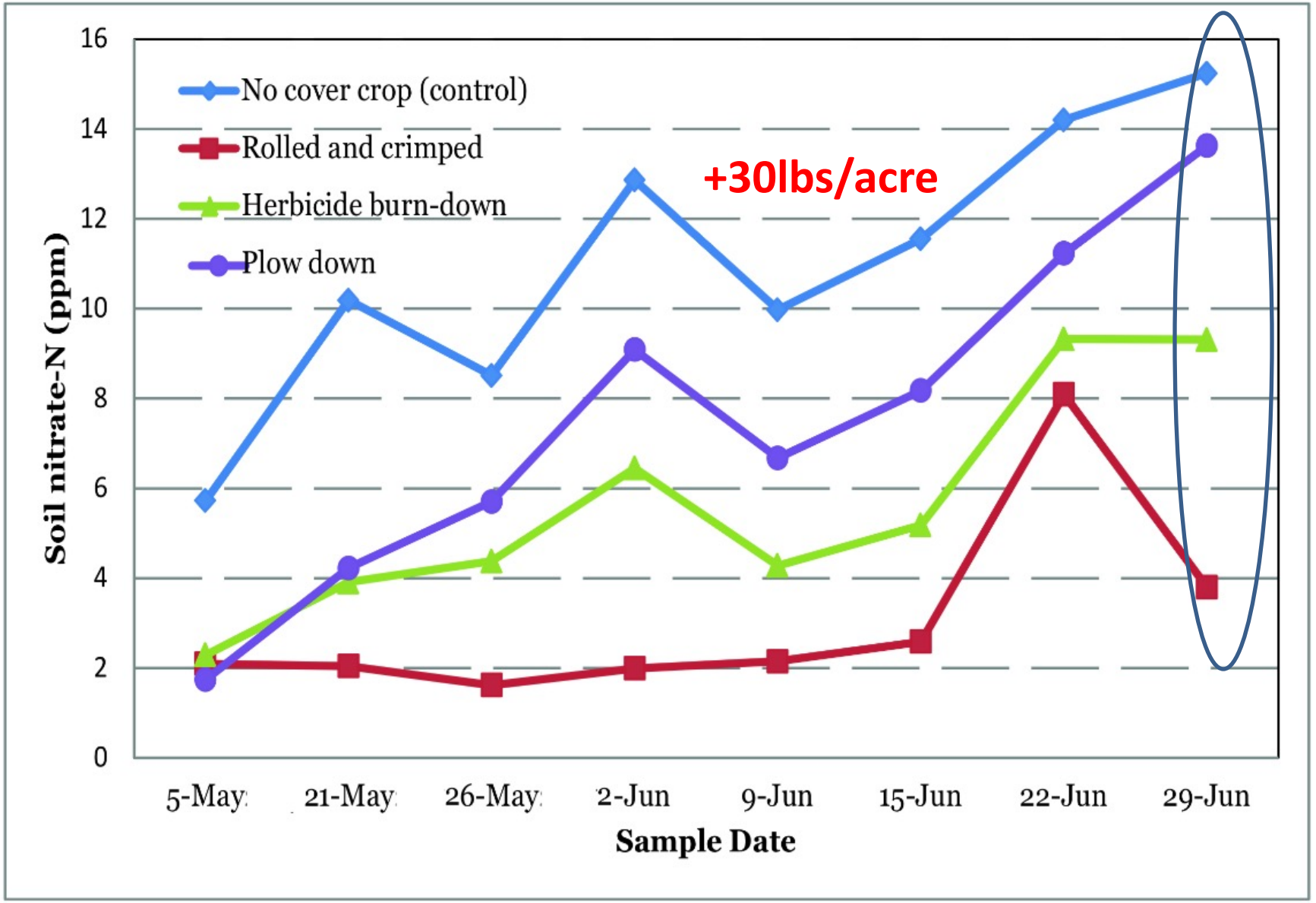
Harvest Dates of Corn



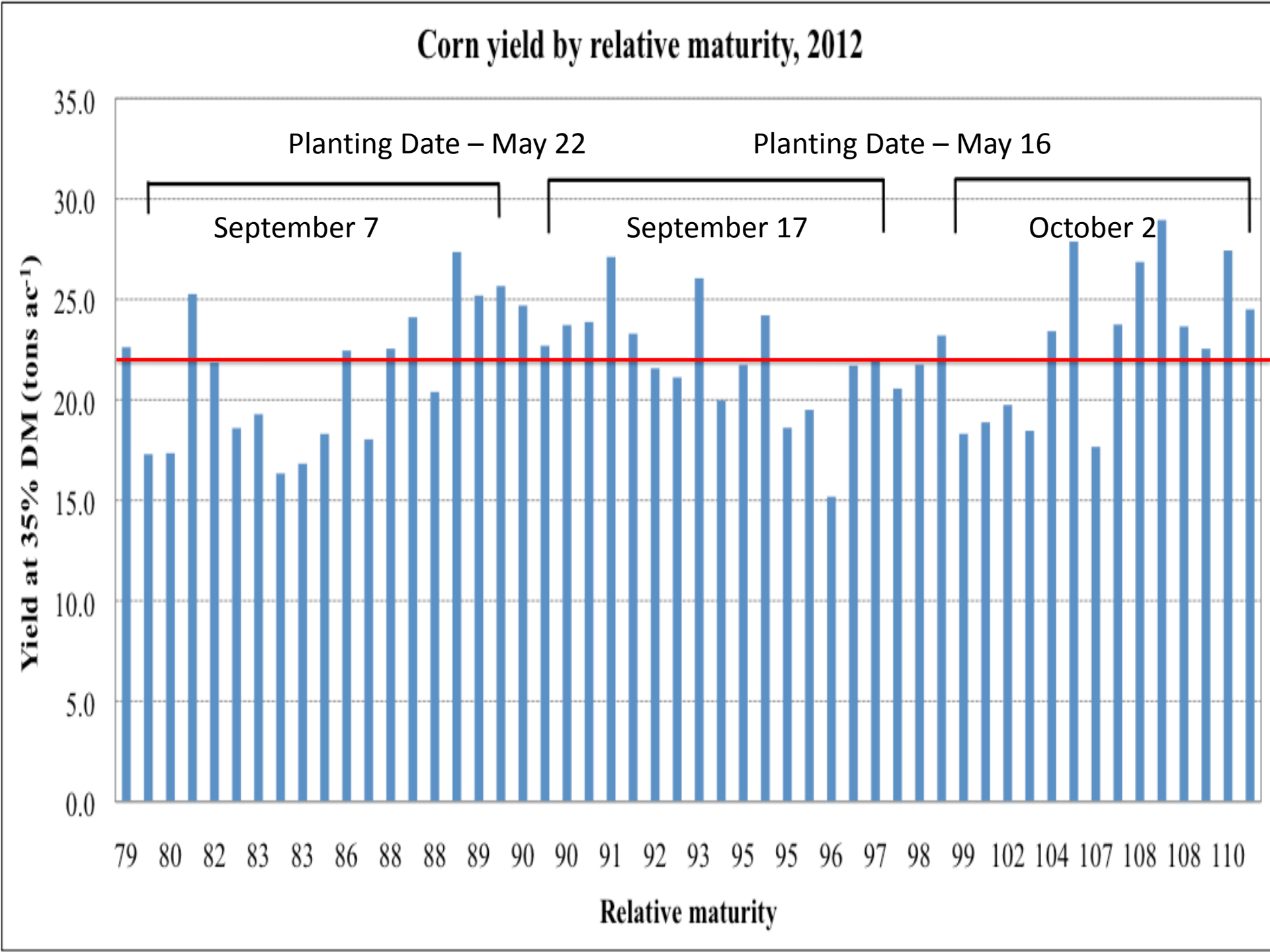


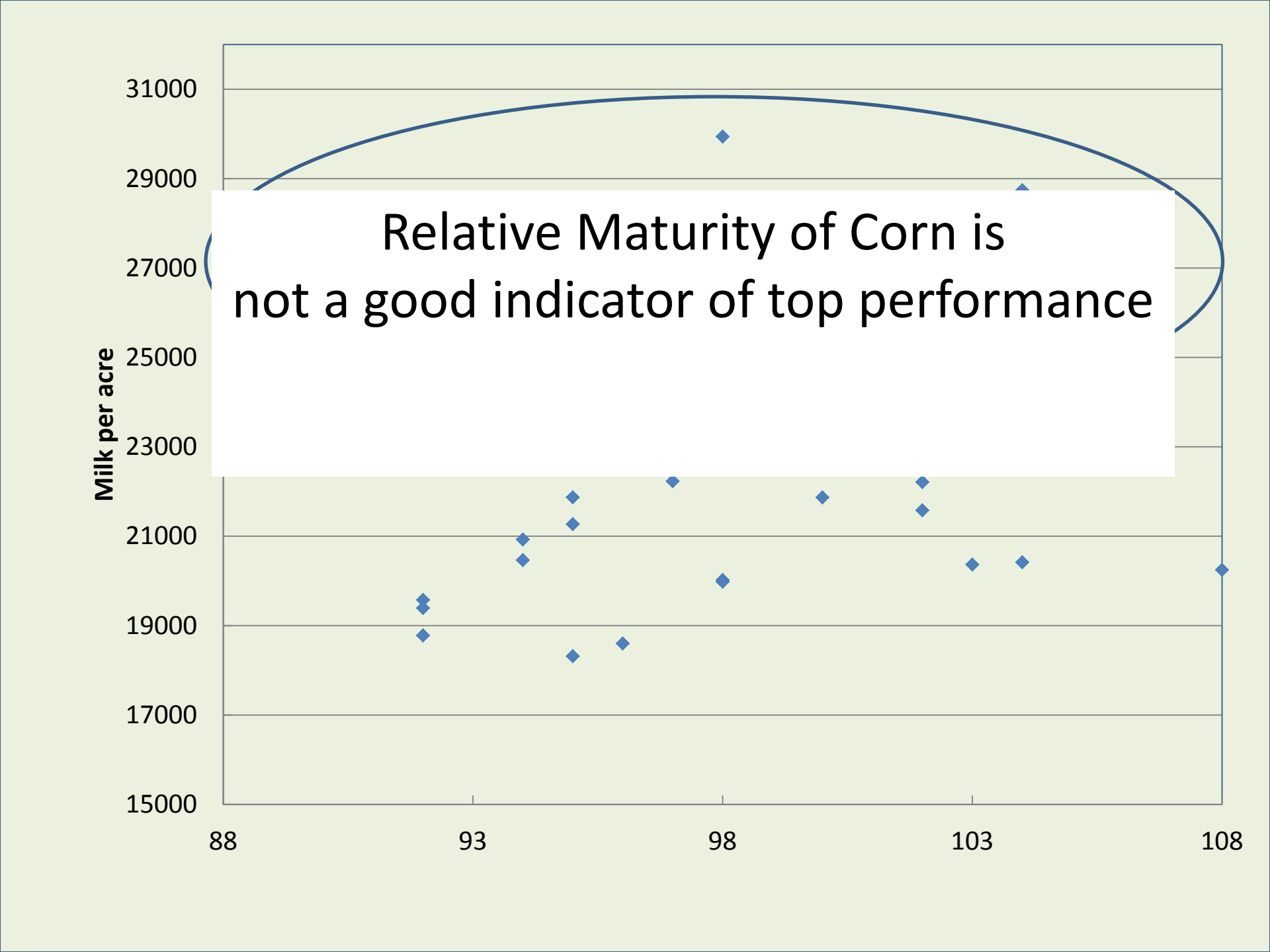
UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

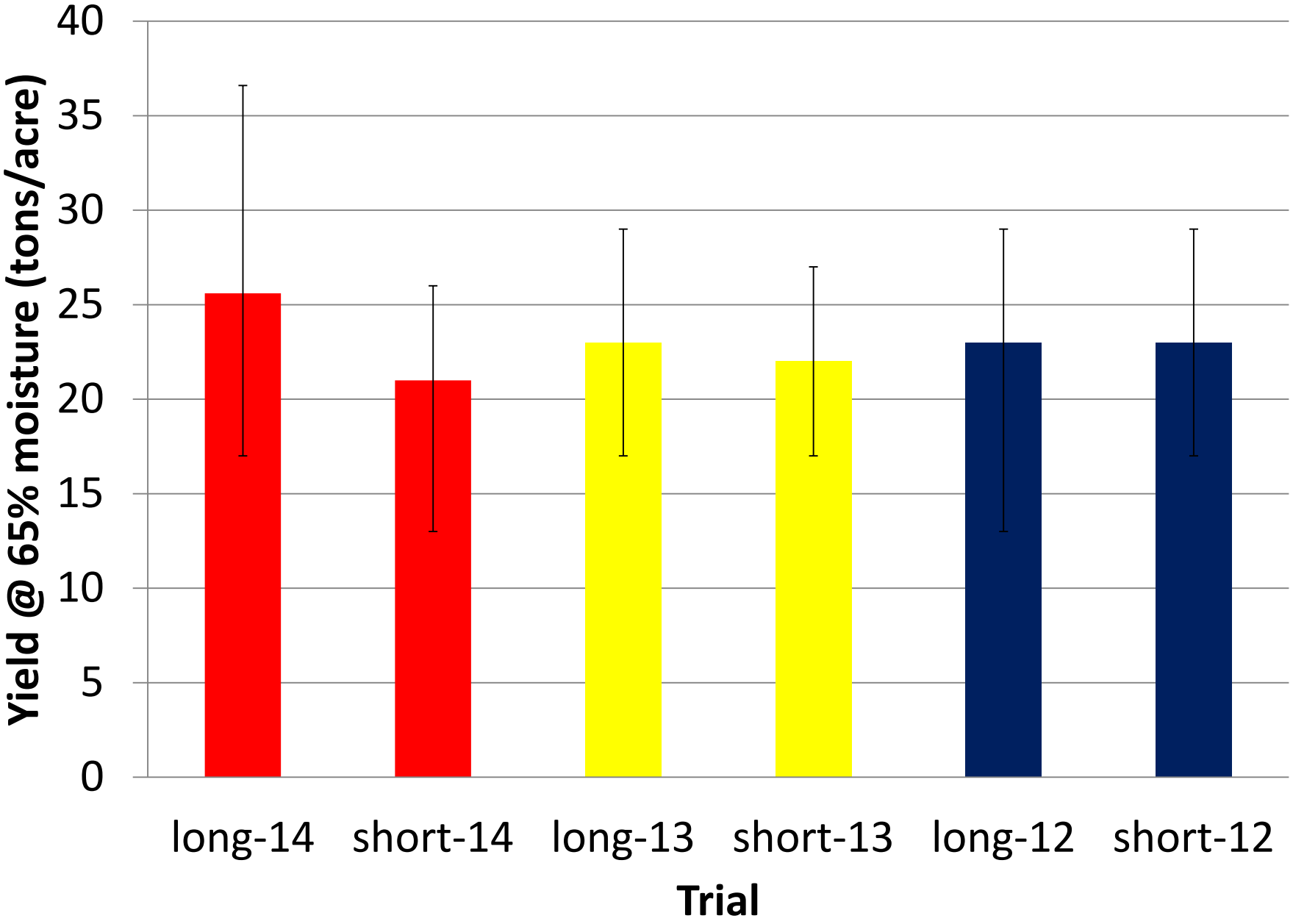
FIGURE 8. **Nitrogen release from cover crops terminated by plow down, herbicide and roller-crimper, compared to no cover crop.**



Cover crop treatment	Soil pH	Available P	K	Mg	Ca	CEC	Zn	Soil Organic Matter
		ppm	ppm	ppm	ppm	meq 100 g^{-1}	ppm	%
Annual ryegrass	**7.23**	44.3	284	193	**3231**	**18.5**	1.33	3.93
Radish	7.10	39.8	253	191	3009	17.3	1.13	4.07
Control	7.20	**57.4**	**322***	**219**	3175	**18.5**	**1.40**	**4.30**
LSD (0.10)	NS	NS	34	NS	NS	NS	NS	NS
Trial mean	7.18	47.2	286	201	3138	18.1	1.29	4.10

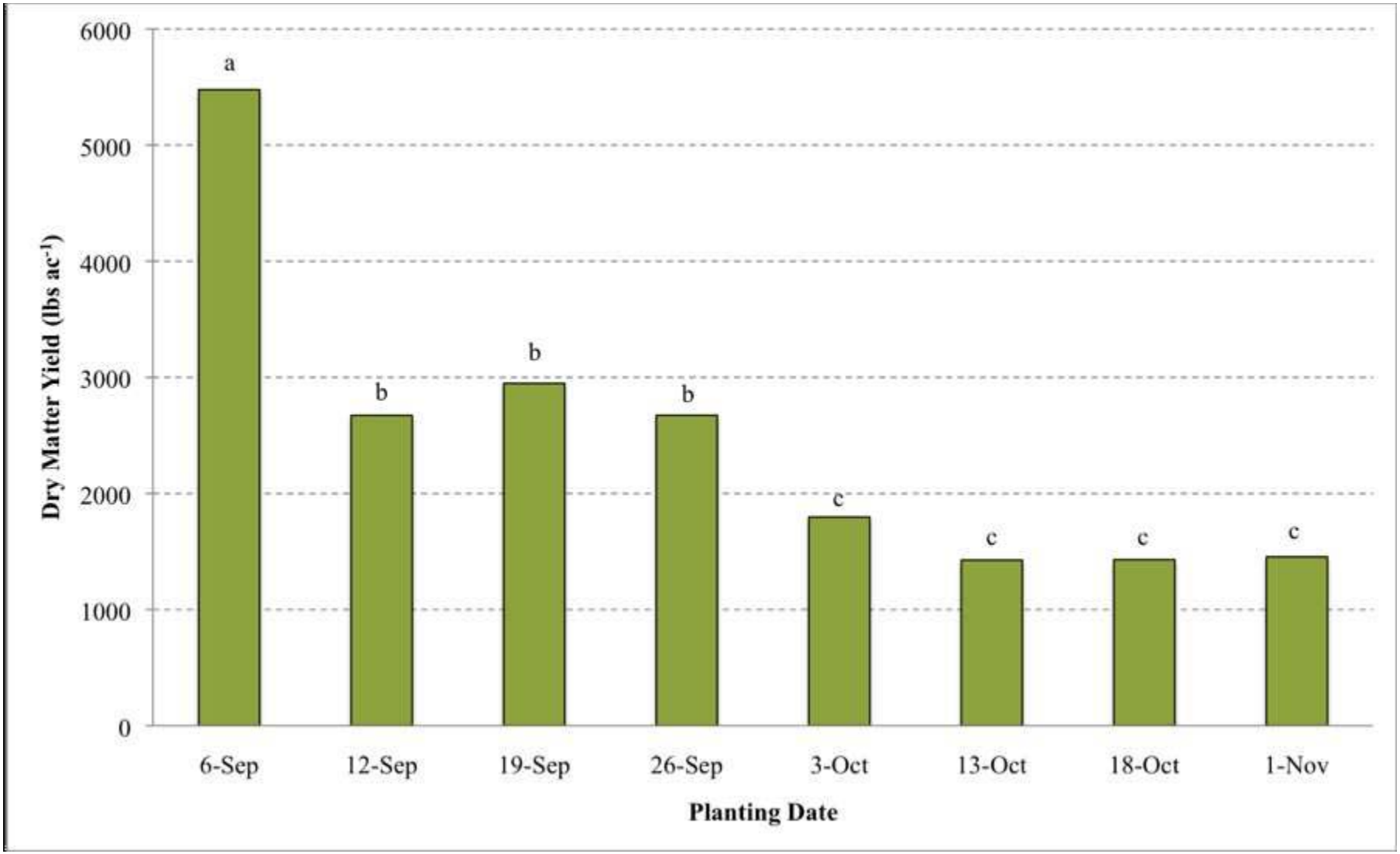

Corn yield by relative maturity, 2012
Planting Date – May 22
Planting Date – May 16
September 7
September 17
October 2
Yield at 35% DM (tons ac-1)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
79 80 82 83 83 86 88 88 89 90 90 91 92 93 95 95 96 97 98 99 102 104 107 108 108 110
Relative maturity


Relative Maturity of Corn is
not a good indicator of top performance
Milk per acre
31000
29000
27000
25000
23000
21000
19000
17000
15000
88
93
98
103
108


40
35
30
25
20
15
10
5
0
Yield @ 65% moisture (tons/acre)
long-14
short-14
long-13
short-13
long-12
short-12
Trial

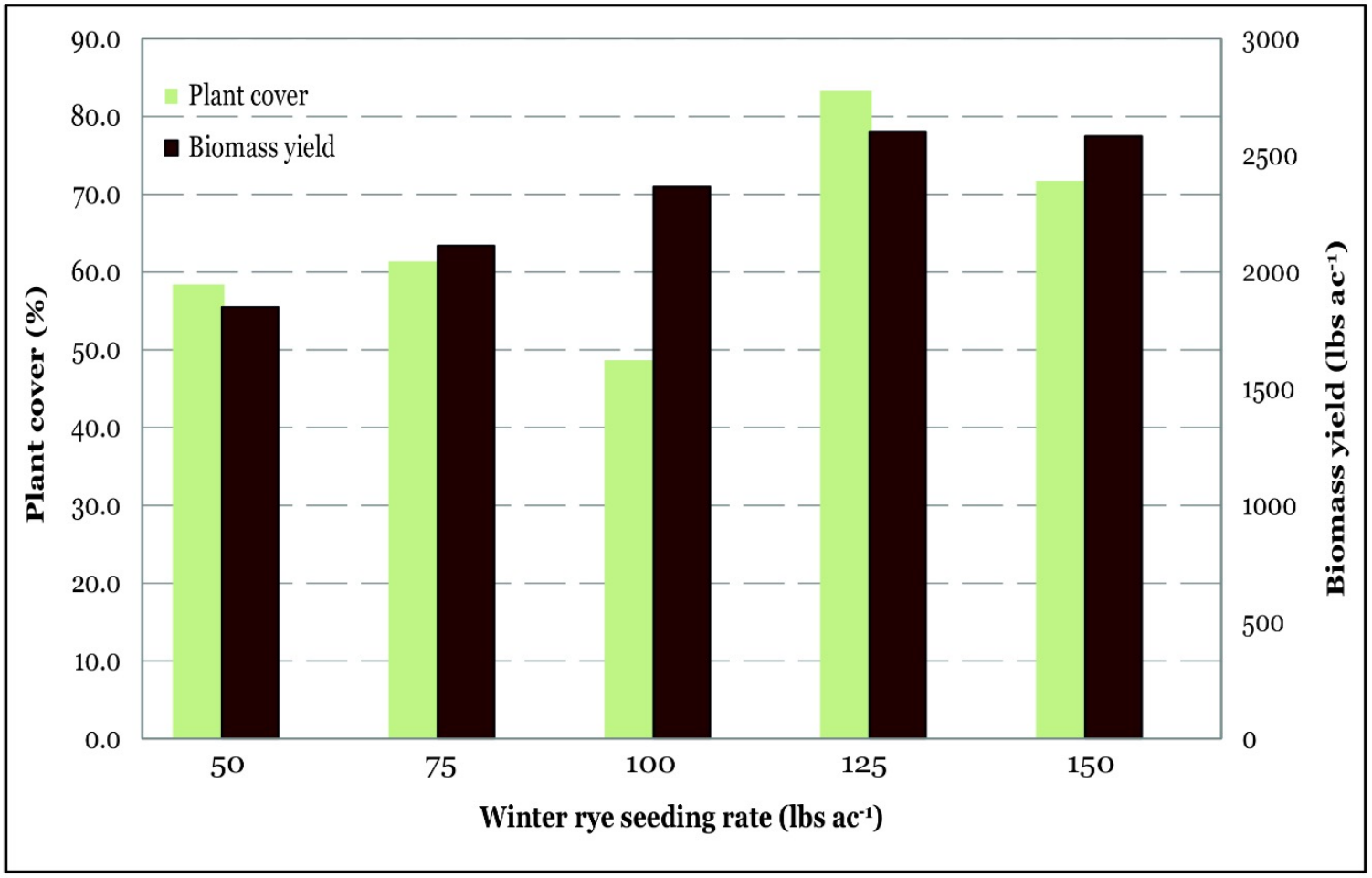
Double Cropping

One month delay in planting results in one week delay in heading date (boot stage).

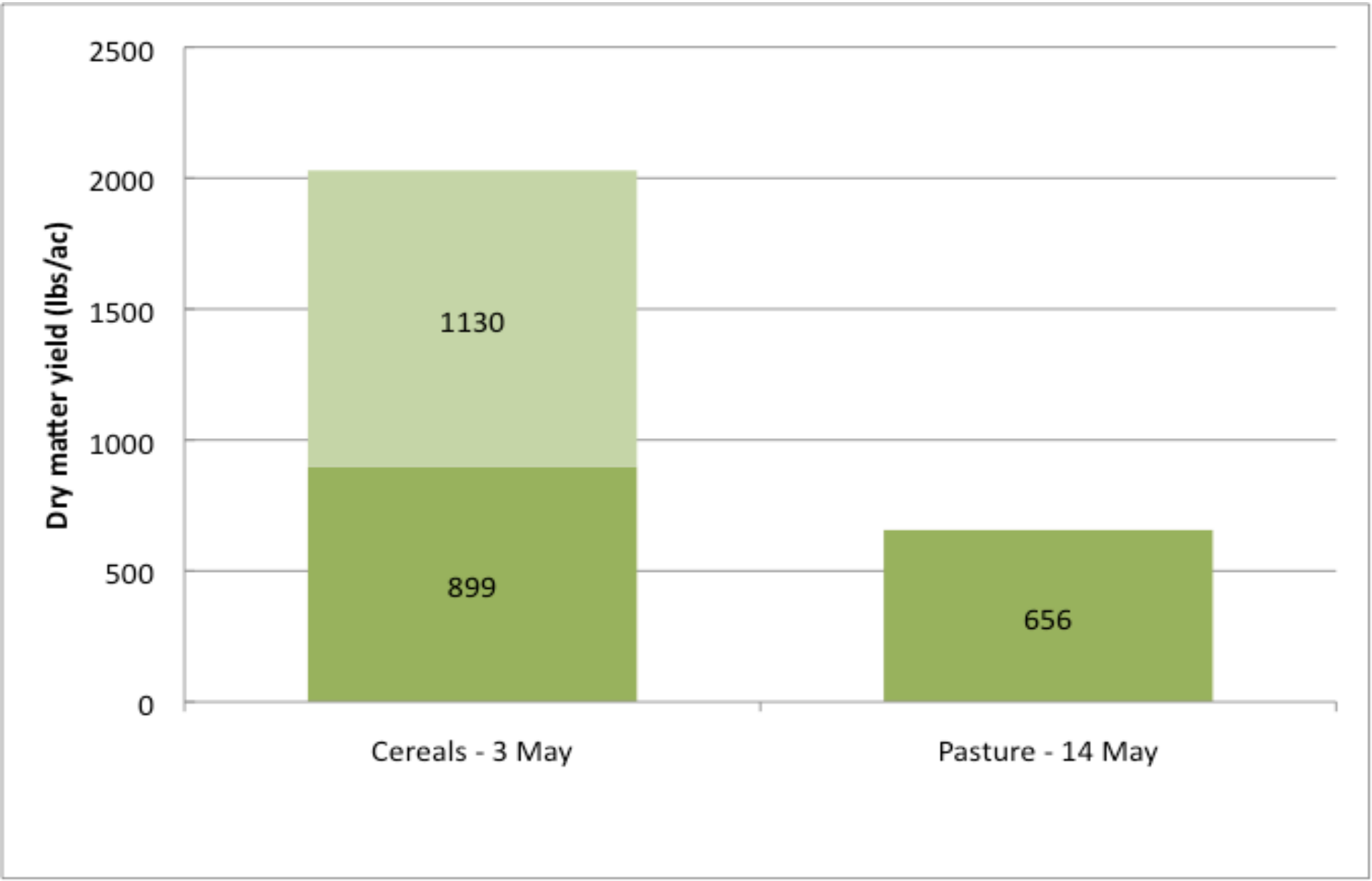



Tillers can account for 60% of yields!

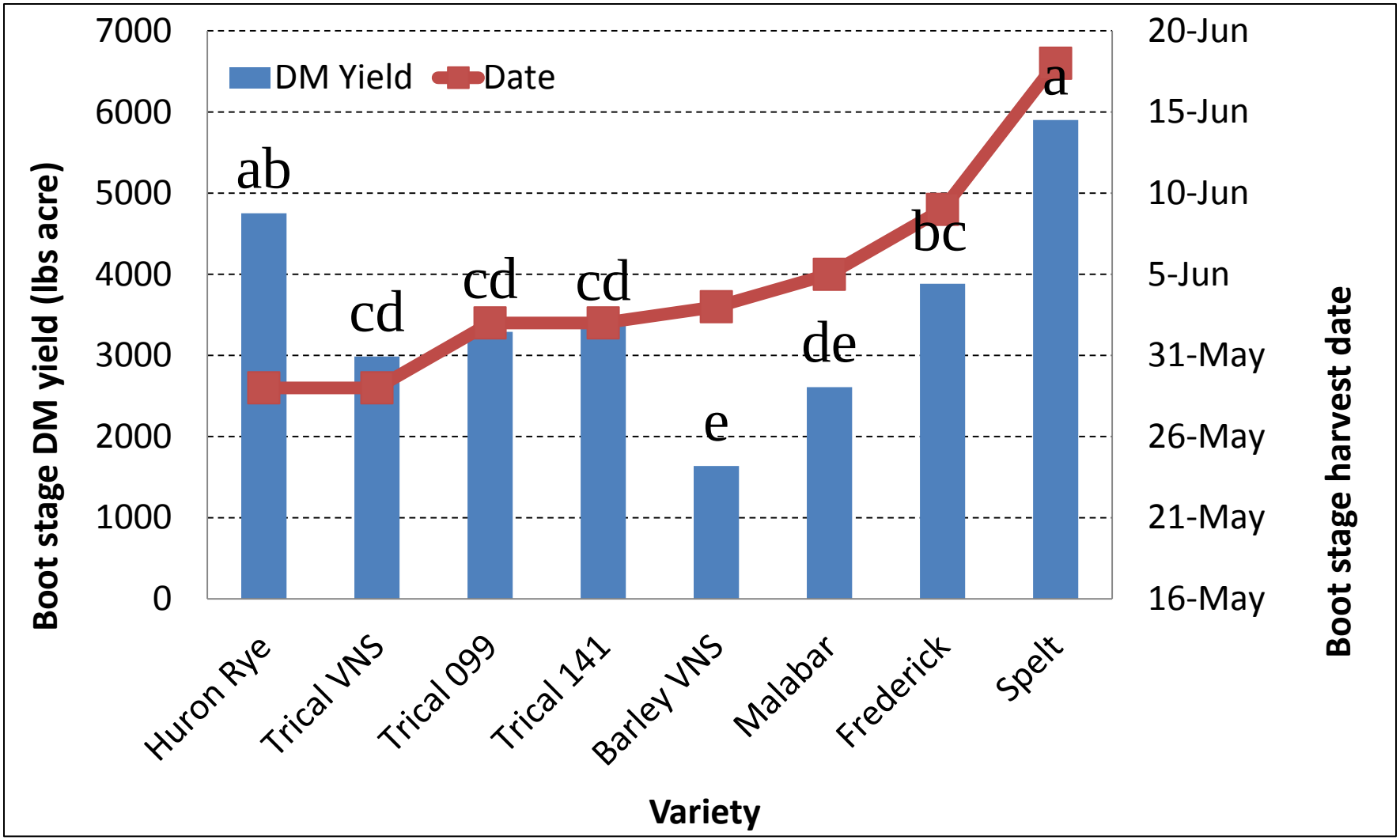
FIGURE 7. **Effects of seeding rate on winter rye plant cover and biomass accumulation (Alburgh, VT, 2009-2012).**



Pasture vs. Cereals



Winter Grain Forages, 2014



Tillage Radish

Planting date	Soil cover	Leaf biomass	Root biomass	Root length
	%	lbs	lbs	in
18-Aug	93.42	1.68	1.54a	23.9a
25-Aug	98.38	1.89	0.73b	20.7a
2-Sep	95.23	1.76	0.35c	16.9b
10-Sep	94.42	1.45	0.17d	14.7b

Tillage Radish

Seed	Yield	Length	Diameter	Cover
rate	ton/acre	in	in	%
3	0.16	19.93	2.37	98.32
6	0.23	20.93	1.73	99.09
8	0.22	18.40	1.72	98.94
12	0.19	16.60	1.57	98.43

Interseeding @ V6

Penn State Interseeder

Late Season Interseeding