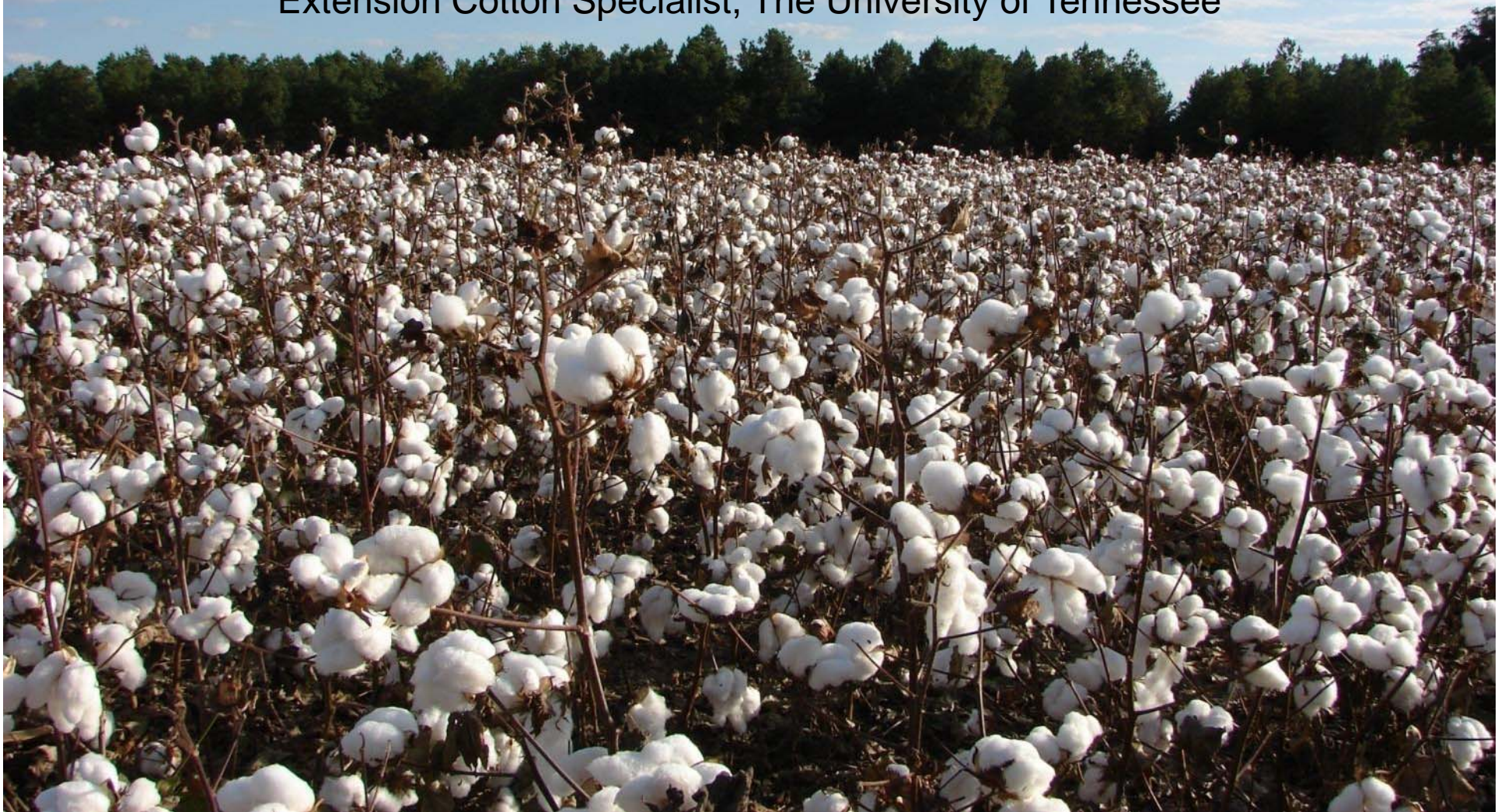


Small Plot Variety Trials

Christopher L. Main

Extension Cotton Specialist, The University of Tennessee



Types of Variety Trials



🌱 Replicated small plot (OVT)

- 2-4 rows wide
- 25-50 feet long
- 3-4 replications

🌱 Replicated large-plot

- Rows = picker setup
- Length = 100 feet to field size

🌱 Strip trials

- Rows = picker setup
- Length = field size

🌱 Demos

🌱 Module-sized plots



UT Testing Program



Official Variety Trials (OVT's)

- 6 locations, 3 irrigated
- 2 rows X 30 ft, RCB design
- High inputs, Uniform management for all sites
- *Measure of genetic horsepower*

County Standard Trials (CST's)

- 14-15 locations, 2 tests (CST1 and CST2)
- Rows = picker width x field length
- Strip-plot, 1 replication/location design
- Selected from prior year OVT results.
- Producer based management plan
- *Measure of broad-scale adaptability*

Site / Soil Uniformity



Small Plot Challenges



Optimum plot size, 2 or 4 row plots

- 30-40 ft length is optimum^{1,2}
- Border rows can have inflated variance³

¹ Kuehl and Kittock. Agron J. 1969. 61:584-586 p

² Keisling et al. Commun. Soil Sci. Plant Anal. 1994, 25:2981-2988 p

³ Luckett et al. Australian J. of Ag. Res. 1992, 43:181-190 p

Alley (edge) effects

- Increase lint yield by 12-15%, 0.6 m from alley⁴
- Mic and Staple effected by distance from ally⁴
- 7 of 8 varieties tested had inflated yields³

⁴ Holman and Bednarz. Commun. Soil Sci. Plant Anal. 2001. 32:119-126 p

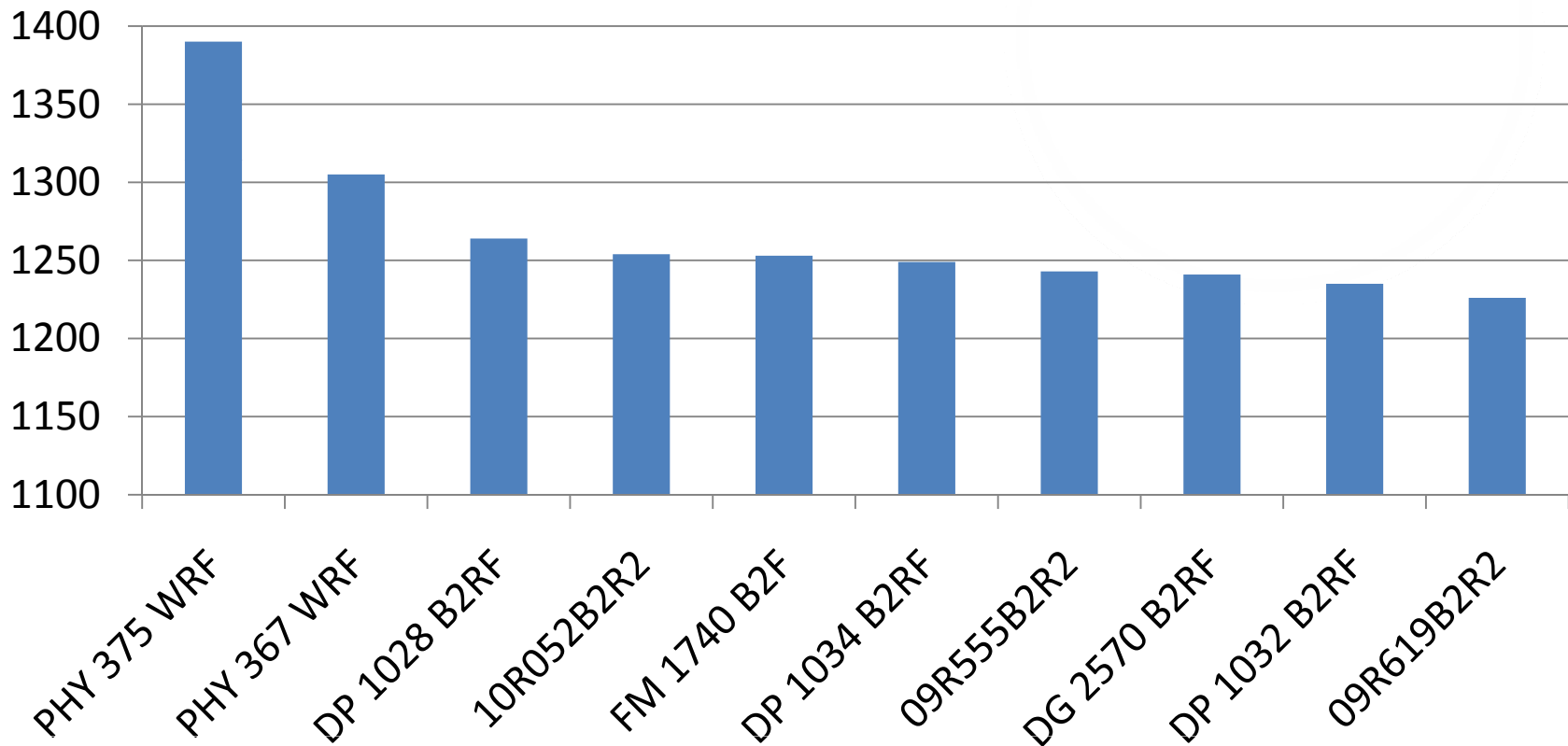
Edge Effects – Yield Inflation



Interpertation OVT's



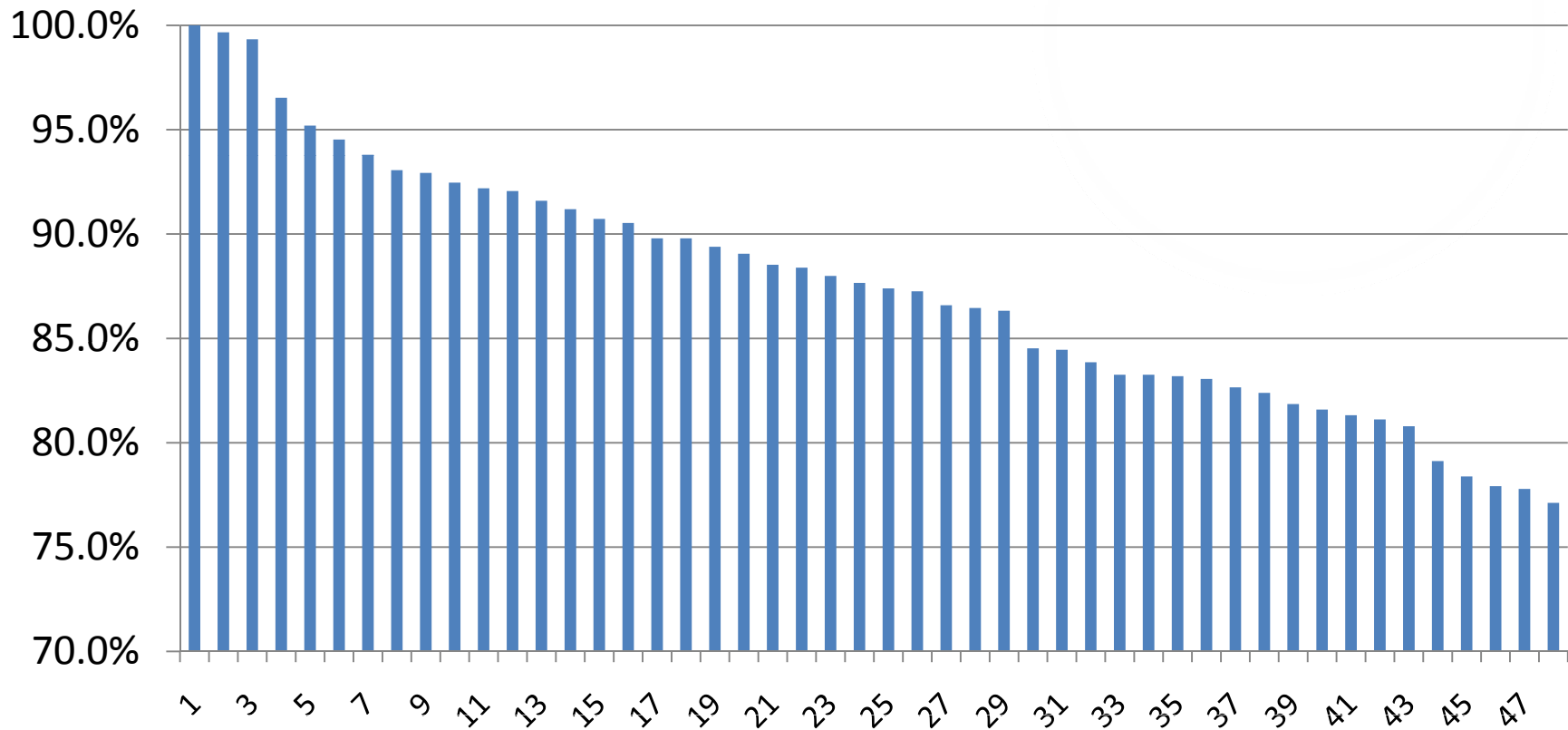
Lint



Interpertation OVT's



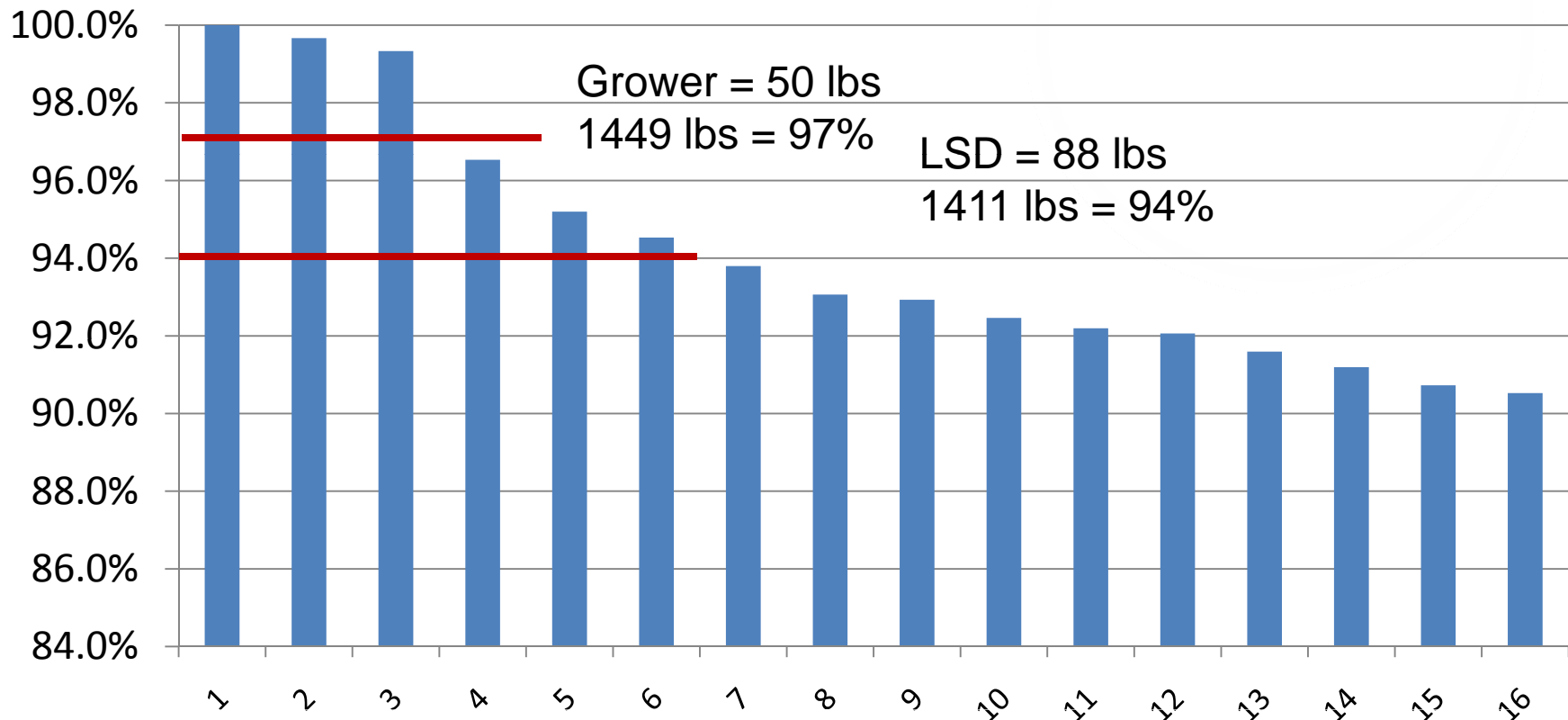
Lint



Interpertation OVT's



Lint



Other Testing Methods



Variety x Planting Date

- Effect of Environment
- Yield & Fiber Quality
- Plant Morphology

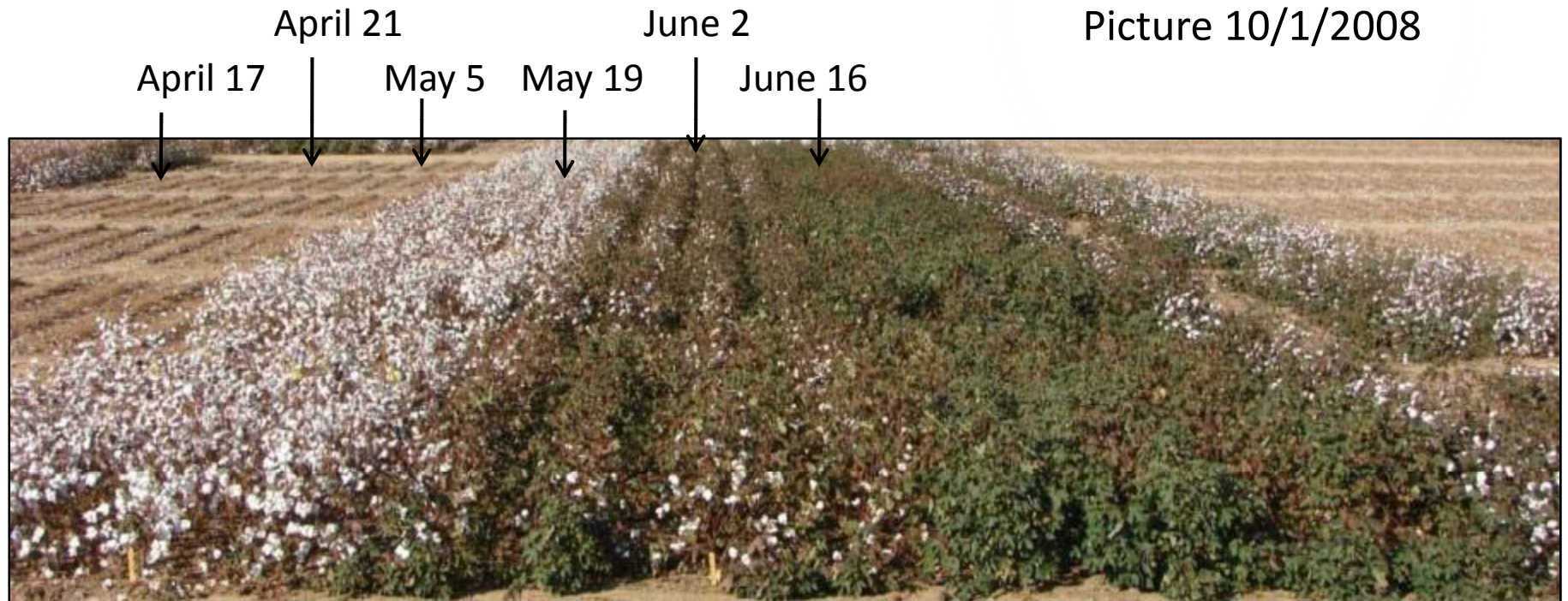


Block	Rep																	
12	1	4	5	2	3	6	1	4	5	2	3	6	4					
	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212						
11	3	2	1	6	5	4	3	2	1	6	5	4		3				
	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112						
10	5	6	3	4	1	2	5	6	3	4	1	2			2			
	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012						
9	6	1	4	5	2	3	6	1	4	5	2	3				1		
	901	902	903	904	905	906	907	908	909	910	911	912						
8	2	5	6	3	4	1	2	5	6	3	4	1					1	
	801	802	803	804	805	806	807	808	809	810	811	812						
7	4	3	2	1	6	5	4	3	2	1	6	5						1
	701	702	703	704	705	706	707	708	709	710	711	712						
6	2	3	6	5	4	1	2	3	6	5	4	1	1					
	601	602	603	604	605	606	607	608	609	610	611	612						
5	6	1	2	3	6	5	6	1	2	3	6	5		1				
	501	502	503	504	505	506	507	508	509	510	511	512						
4	4	5	4	1	2	3	4	5	4	1	2	3			1			
	401	402	403	404	405	406	407	408	409	410	411	412						
3	5	6	5	6	5	6	5	6	5	6	5	6				1		
	301	302	303	304	305	306	307	308	309	310	311	312						
2	3	4	3	4	3	4	3	4	3	4	3	4					1	
	201	202	203	204	205	206	207	208	209	210	211	212						
1	1	2	1	2	1	2	1	2	1	2	1	2						1
	101	102	103	104	105	106	107	108	109	110	111	112						

Planting Date Trial



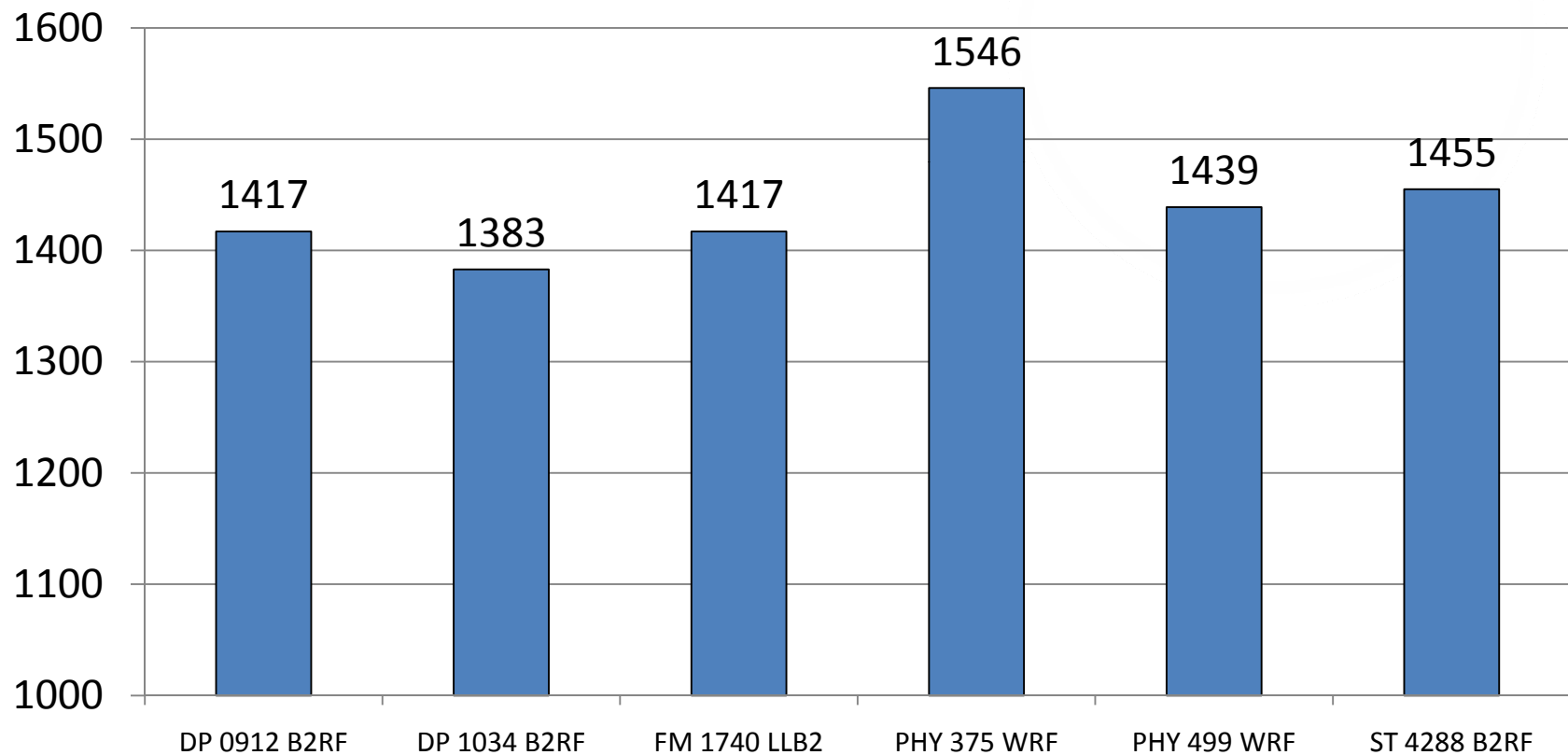
Picture 10/1/2008



Variety Effect



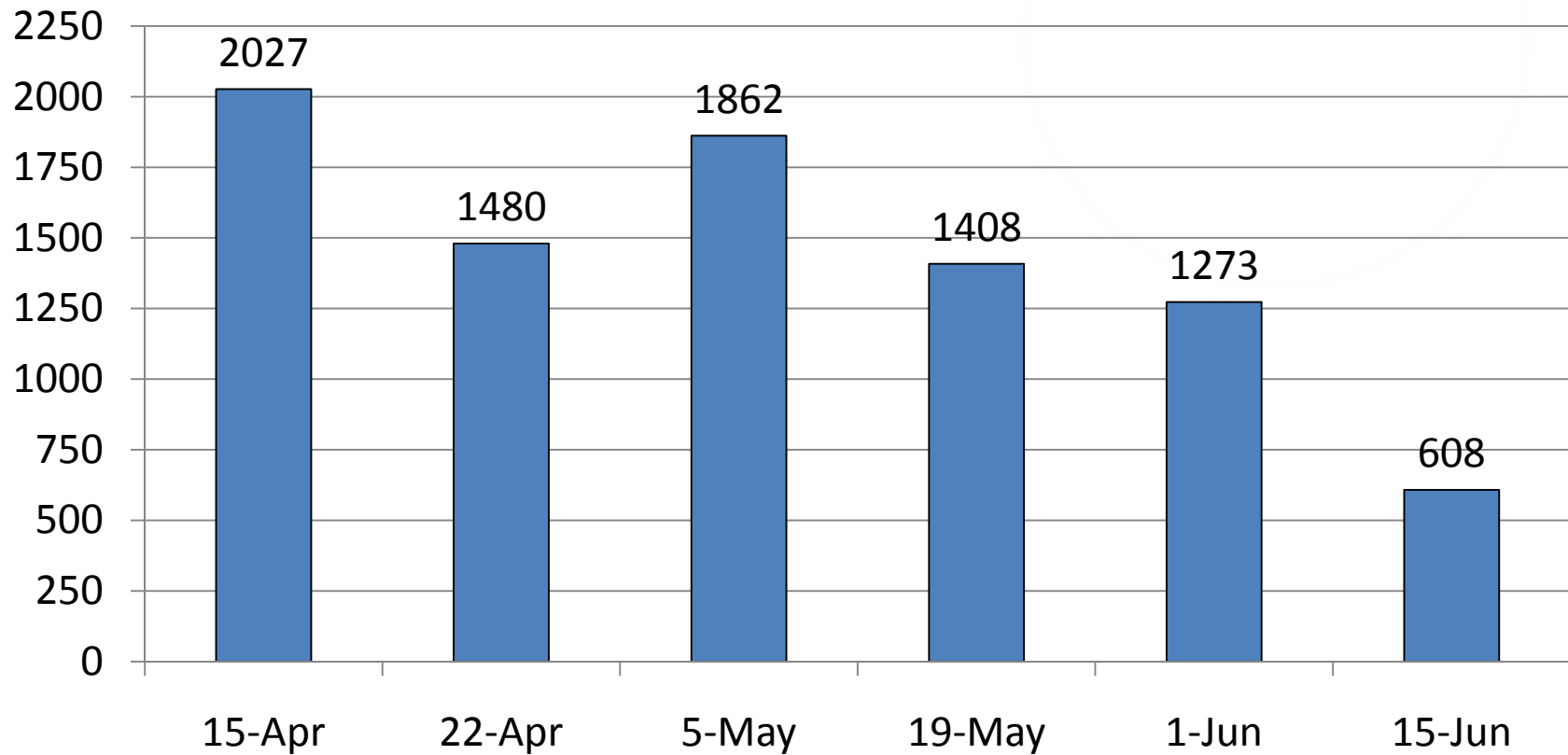
LINT



Date Effect



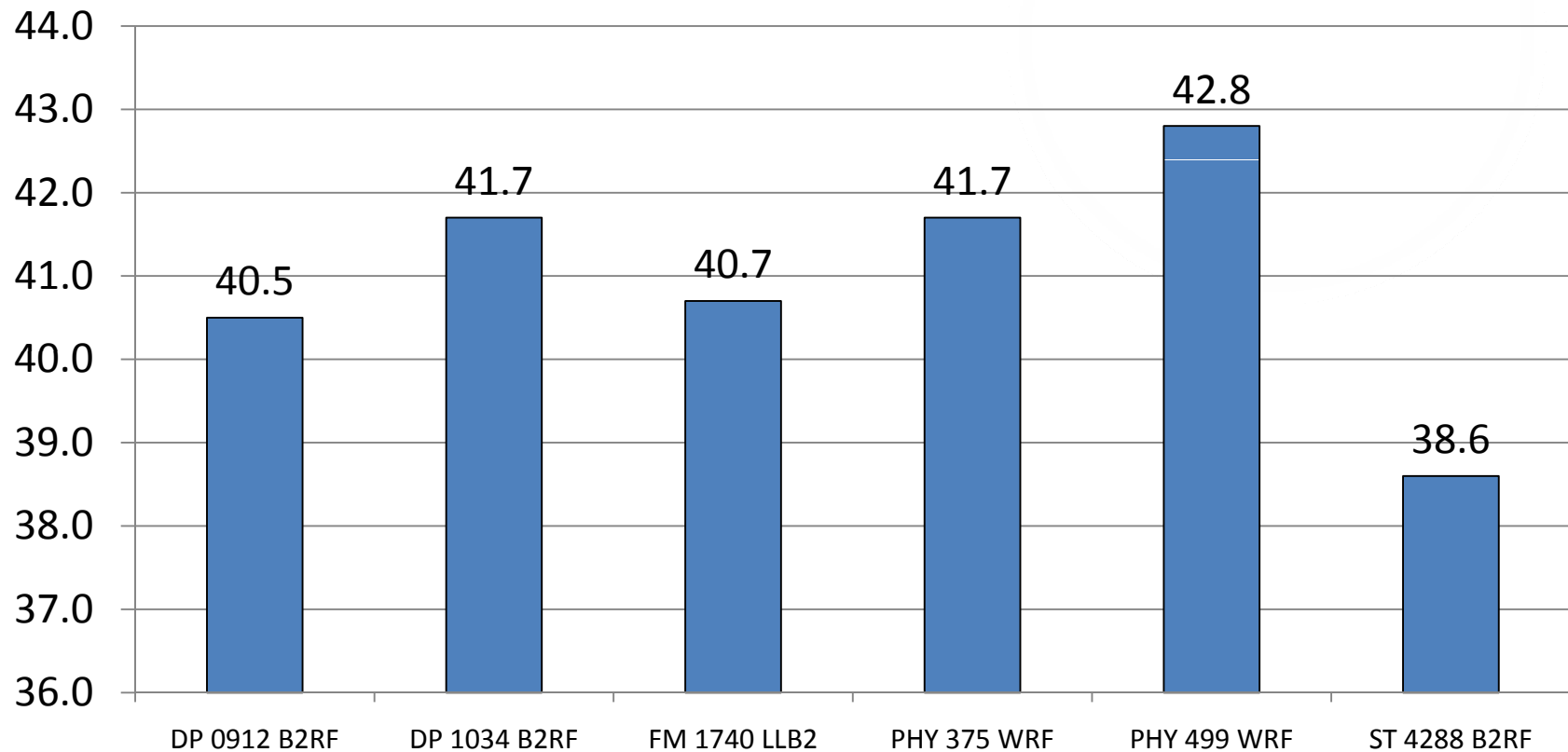
LINT



Variety Effect



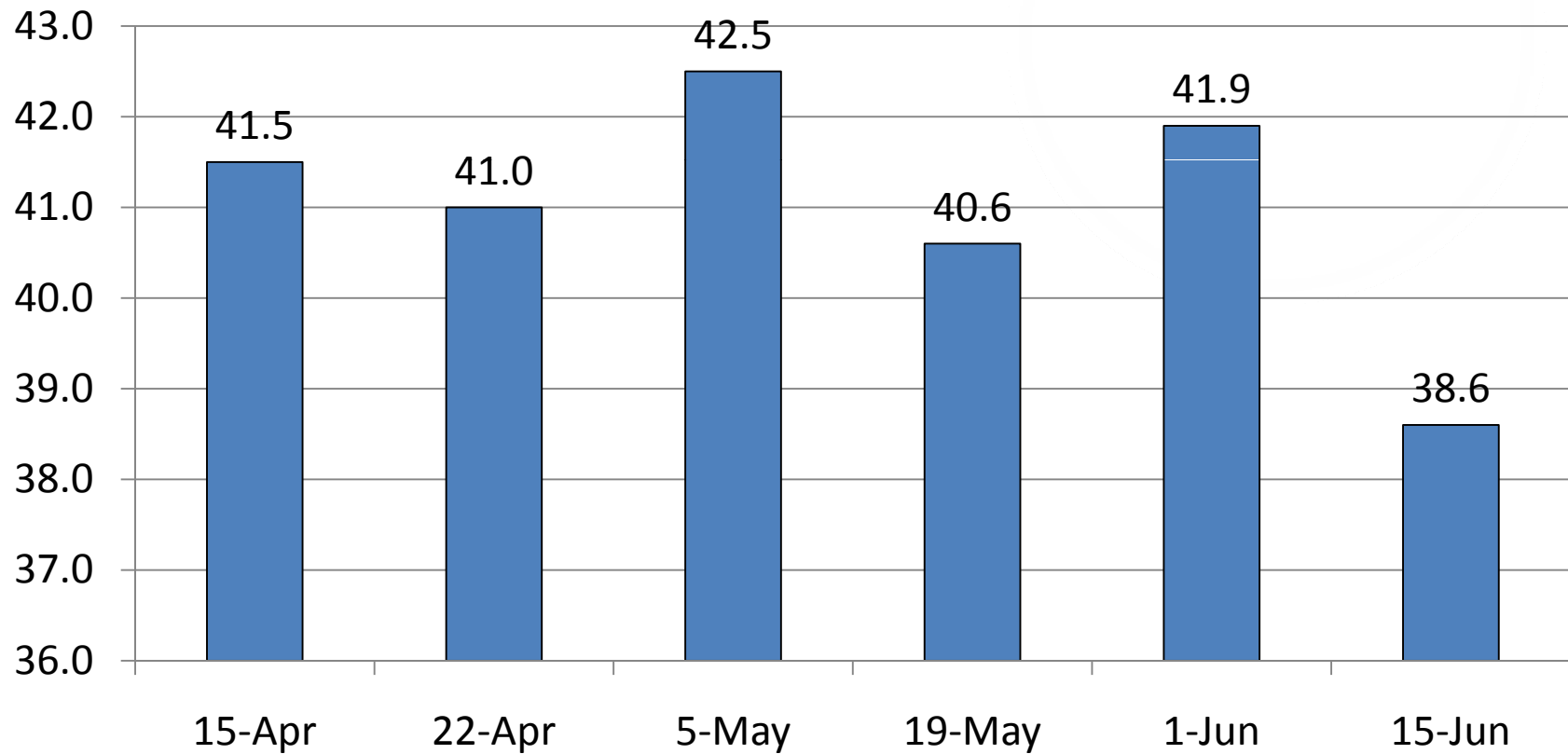
GTO



Date Effect



GTO



Discussion



- 🌱 Impossible to defoliate varieties perfectly in a trial
- 🌱 Sampling and storage of seedcotton and the ginning process can affect color and leaf
 - Mic and length variability from alley effects in OVTs, could alter price on the loan chart tremendously
- 🌱 Investigate as much data as possible
- 🌱 Don't interpolate too much from each data set
- 🌱 Choose 4-6 varieties for your acreage

