HOW TO PICK THE BEST WHEAT VARIETY

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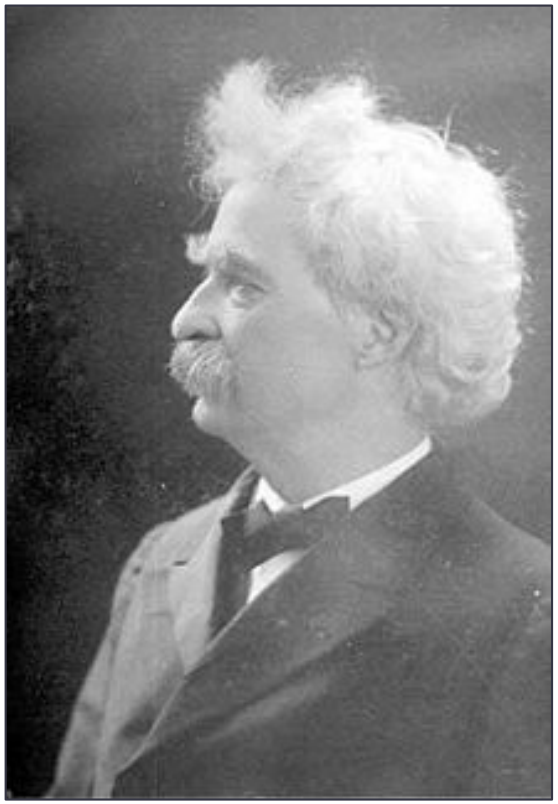
Famous Statisticians and Quotes



There are three kinds of lies: lies, damned lies, and statistics.

- Mark Twain

While it is easy to lie with statistics, it is even easier to lie without them.

- Frederick Mosteller


Colorado State University Extension
Colorado State University Crops Testing
WHEAT
TEST
PLOTS
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Summary of 2016 Dryland Winter Wheat Variety Performance Results

	2016 Individual Trial Yield[a]								2016 Multi-Location Average				
Variety[b]	Arapahoe	Julesburg	Lamar	Orchard	Roggen	Sheridan Lake	Walsh	Yuma	Yield	Yield	Stripe Rust	Test Weight	Height
	bu/ac								bu/ac	% of avg	score (1-9)[c]	lb/bu	in
Antero	98.3	95.0	68.7	**51.4**	105.5	**115.5**	62.0	93.3	86.2	110%	2	57.2	34
CO11D1539	91.3	**96.2**	64.8	49.0	**111.1**	111.1	**66.4**	94.7	85.6	109%	3	56.3	36
Langin	**110.2**	84.2	**72.7**	45.3	101.2	**115.1**	**64.6**	90.0	85.4	109%	2	59.0	32
CO12D2011	95.2	89.0	62.6	47.3	**106.3**	108.6	62.1	94.1	83.2	106%	3	60.1	34
CO12D2010	93.8	91.1	66.2	46.2	103.0	108.9	57.5	94.3	82.6	105%	3	56.2	33
Hatcher	97.9	91.4	**71.3**	**50.7**	103.0	100.9	57.3	88.2	82.6	105%	5	57.7	33
Avery	93.0	95.7	66.7	47.7	**109.6**	**113.9**	58.7	73.8	82.4	105%	7	58.6	35
CO11D1312	92.2	**98.6**	64.9	**51.0**	**107.0**	108.0	62.6	74.1	82.3	105%	8	58.3	34
LCH13NEDH-14-69	89.9	91.8	56.5	44.2	**111.8**	**114.0**	57.6	90.5	82.0	104%	2	59.0	32
Joe	95.4	92.1	54.6	45.0	**110.7**	106.7	62.2	87.3	81.7	104%	1	58.7	34
Sunshine	85.3	95.5	57.2	**49.9**	**110.1**	102.2	60.7	91.8	81.6	104%	7	56.4	34
WB-Grainfield	92.9	93.1	61.0	**50.5**	96.4	105.1	60.5	92.1	81.5	104%	3	59.4	34
CO11D1767	96.0	91.4	63.3	**49.8**	94.6	110.7	58.0	85.8	81.2	103%	1	57.0	33
CO11D1397	94.4	89.3	67.1	48.5	104.4	**111.8**	60.0	71.5	80.9	103%	7	57.8	31
CO11D1236	102.3	90.4	58.8	47.9	101.1	105.5	64.0	76.2	80.8	103%	6	58.3	35
TAM 114	96.4	**100.6**	56.3	**51.1**	96.0	100.2	54.3	90.5	80.7	103%	2	60.6	34
CO12D922	70.0	**96.3**	61.2	**49.5**	102.2	108.5	**66.1**	91.2	80.6	103%	7	58.6	35
LCS Mint	96.4	91.8	54.6	47.3	105.3	110.2	54.0	84.7	80.5	103%	4	59.4	34
Byrd	94.2	86.8	67.9	46.0	100.6	110.3	60.4	73.6	80.0	102%	6	59.3	34
CO11D421	89.9	84.6	**70.4**	46.9	102.5	108.3	59.6	77.2	79.9	102%	4	57.6	33
Cowboy	94.1	83.0	62.0	**52.6**	**111.3**	110.7	50.0	75.1	79.8	102%	8	56.8	32
CO11D1306W	91.9	91.2	65.9	43.6	101.8	109.3	60.9	73.7	79.8	102%	7	59.6	34
Denali	87.9	**98.5**	59.6	**50.7**	101.9	102.4	56.6	76.5	79.3	101%	8	59.5	36

Summary of 2015 Dryland Variety Performance Results

Variety[b]	2015 Individual Trial Yield[a]									2015 Multi-Location Average				
	Akron	Burlington	Genoa	Julesburg	Lamar	Orchard	Roggen	Sheridan Lake	Yuma	Yield	Yield	Stripe Rust	Test Weight	Height
	bu/ac									bu/ac	% of avg	score (1-9)[c]	lb/bu	in
Joe	**90.2**	**89.1**	46.7	**88.0**	27.4	114.3	**89.2**	**86.7**	100.3	81.3	133%	1	60.7	33
CO11D1767	**81.5**	**92.1**	**50.9**	**85.3**	31.8	**118.0**	**83.7**	69.4	102.4	79.4	130%	1	57.2	33
Antero	71.5	**89.4**	**50.0**	80.8	36.5	**120.8**	63.2	**74.7**	103.3	76.7	126%	2	58.5	33
SY Monument	**75.3**	85.8	41.9	79.7	29.6	110.9	**76.5**	60.1	**106.8**	74.1	121%	2	58.8	32
CO11D1539	59.4	86.4	**49.4**	79.3	36.9	111.3	63.1	**77.7**	90.9	72.7	119%	3	58.4	33
Oakley CL	**75.0**	78.2	47.2	65.6	25.6	109.5	73.5	**85.6**	89.7	72.2	118%	1	57.6	31
CO11D1236	65.2	79.3	41.9	76.0	**37.3**	108.5	65.7	66.7	**106.1**	71.9	118%	7	59.0	34
Ruth	64.5	72.5	38.3	79.5	*21.2*	**122.1**	53.4	68.3	104.1	69.3	114%	3	59.8	33
CO11D1306W	65.9	72.9	38.4	75.1	34.4	108.0	70.8	60.8	95.6	69.1	113%	6	59.2	33
TAM 114	68.5	72.2	**47.7**	82.3	24.5	92.4	55.9	65.5	104.2	68.1	112%	2	58.9	33
Denali	57.6	67.4	38.8	76.8	29.9	107.8	67.1	55.9	**105.0**	67.4	110%	8	58.5	35
WB-Grainfield	58.4	80.7	35.1	**82.9**	22.1	96.9	58.7	74.1	90.1	66.6	109%	2	58.9	33
CO11D1353	38.0	70.7	41.8	73.4	**38.2**	93.2	**73.6**	69.5	88.5	65.2	107%	6	56.8	34
CO11D446	34.6	**92.2**	46.0	**87.3**	28.9	87.5	37.9	74.2	98.0	65.2	107%	3	58.9	31
CO11D1298	52.1	66.8	30.0	70.2	34.5	108.9	70.5	45.9	104.9	64.9	106%	6	56.5	33
Winterhawk	44.1	66.3	38.4	70.5	26.4	109.1	56.7	62.1	**107.5**	64.6	106%	4	58.4	33
LCS Mint	45.6	72.7	41.1	54.3	34.0	**117.2**	63.0	68.8	83.8	64.5	106%	4	57.6	34
SY Wolf	54.6	59.6	42.9	62.8	26.4	102.8	69.2	61.4	88.9	63.2	104%	3	56.7	32
Avery	34.6	73.3	31.3	70.9	**37.0**	107.1	53.6	62.1	87.2	61.9	101%	7	57.2	35
TAM 204	53.4	72.8	30.5	66.5	26.6	99.2	63.5	67.7	72.7	61.4	101%	2	55.3	30
KanMark	36.2	77.1	42.0	66.4	25.3	102.9	55.7	57.2	88.9	61.3	100%	6	58.6	28
Sunshine	38.2	72.5	41.0	72.9	23.2	101.3	35.3	67.4	99.4	61.2	100%	4	57.1	31
LCS Pistol	51.3	78.5	36.8	72.9	*19.6*	*79.1*	47.8	64.6	95.5	60.7	99%	6	57.8	32
Cowboy	42.4	63.5	32.4	67.2	27.7	102.5	65.3	48.4	89.5	59.9	98%	8	56.2	33
Byrd	30.1	75.1	28.0	68.4	33.4	104.1	43.1	62.3	93.4	59.8	98%	7	58.0	34

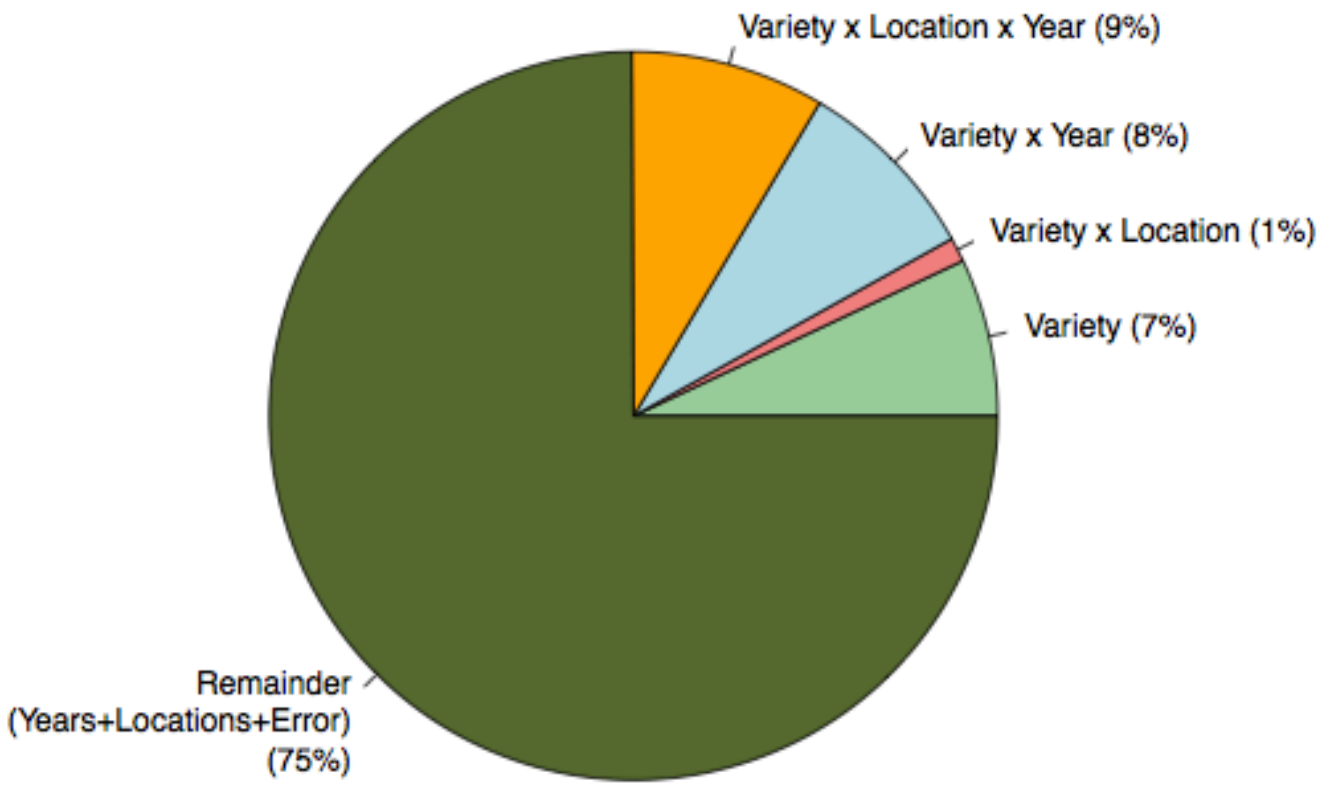
Summary of 2-Yr (2015 and 2016) Dryland Variety Performance Results

Variety[b]	Brand/Source	Market Class[c]	2-Year Average[a] Yield	Yield	Test Weight	Plant Height
			bu/ac	% trial average	lb/bu	in
Joe	Kansas Wheat Alliance	**HWW**	81.5	115%	59.5	34
Antero	PlainsGold	**HWW**	81.2	115%	57.8	33
CO11D1767	Colorado State Univ. exp.	HRW	80.3	114%	57.0	33
CO11D1539	Colorado State Univ. exp.	HRW	78.8	111%	57.2	35
CO11D1236	Colorado State Univ. exp.	HRW	76.1	108%	58.6	35
SY Monument	AgriPro Syngenta	HRW	75.9	107%	58.4	33
Oakley CL	Kansas Wheat Alliance	HRW	75.3	106%	58.0	31
Langin	Colorado State Univ. exp.	HRW	74.7	106%	59.0	31
CO11D1306W	Colorado State Univ. exp.	**HWW**	74.1	105%	59.4	34
TAM 114	AGSECO	HRW	74.0	105%	59.9	33
WB-Grainfield	WestBred Monsanto	HRW	73.6	104%	59.2	34
Denali	PlainsGold	HRW	73.0	103%	59.1	35
Ruth	Husker Genetics	HRW	72.8	103%	60.1	34
LCS Mint	Limagrain	HRW	72.1	102%	58.6	34
Avery	PlainsGold	HRW	71.5	101%	58.0	35
Winterhawk	WestBred Monsanto	HRW	71.1	101%	59.1	34
Sunshine	PlainsGold	**HWW**	70.8	100%	56.7	33
Hatcher	PlainsGold	HRW	69.4	98%	57.0	33
CO11D1397	Colorado State Univ. exp.	HRW	69.4	98%	57.4	31
Cowboy	Crop Res. Foundation of WY	HRW	69.3	98%	56.5	32
Byrd	PlainsGold	HRW	69.3	98%	58.7	34
SY Wolf	AgriPro Syngenta	HRW	68.7	97%	56.4	32
KanMark	Kansas Wheat Alliance	HRW	68.5	97%	58.5	30
TAM 204	Watley Seed	HRW	67.6	96%	55.1	30
Settler CL	Husker Genetics	HRW	66.8	94%	56.8	32
Snowmass	PlainsGold	**HWW**	66.8	94%	58.0	34
Brawl CL Plus	PlainsGold	HRW	63.4	90%	58.1	33
MTS1024	Montana State Univ. exp.	HRW	60.6	86%	54.5	32
Ripper	PlainsGold	HRW	59.5	84%	55.7	32
Akron	Colorado State Univ.	HRW	59.3	84%	56.0	34
Prairie Red	PlainsGold	HRW	56.7	80%	56.7	31
		Average	**70.7**		**57.8**	**33**

Wheat Variety Trial Data

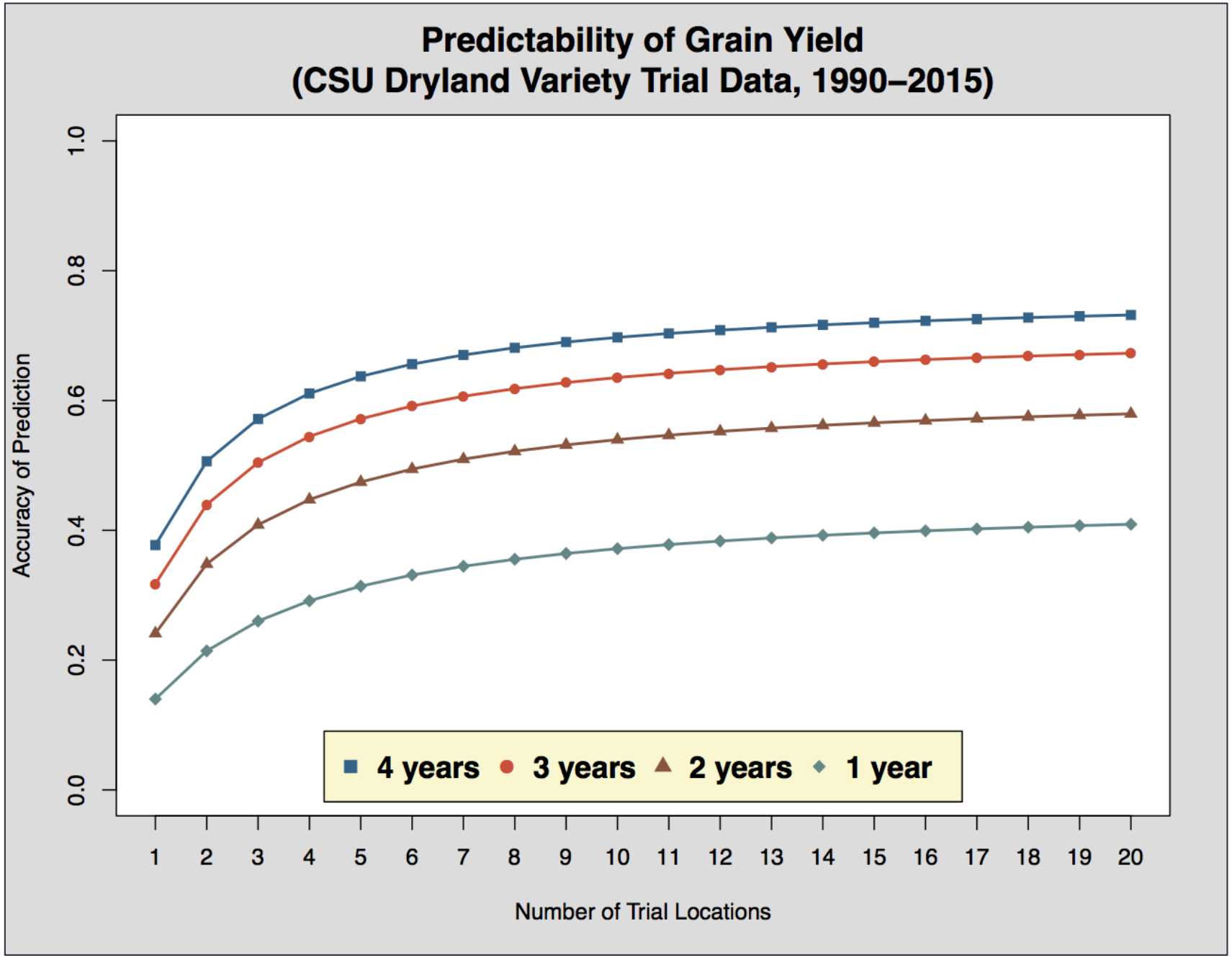
- What are the sources of variation in these trials?
  - Test entries (varieties, “genotypes”): most common focus
  - Locations: also a common focus, much more complicated
  - Years: equally important & complicated, less controllable
  - Interactions among the above (I’ll come back to this…)
- Dataset
  - All CSU dryland variety trial data from 1990-2015
  - 26 years of testing
  - 25 trial “locations”, 2-3 replications per location
  - 220 unique year x location combinations
  - 219 different test entries (released varieties and lines)
  - 22,392 total observations for yield and test weight

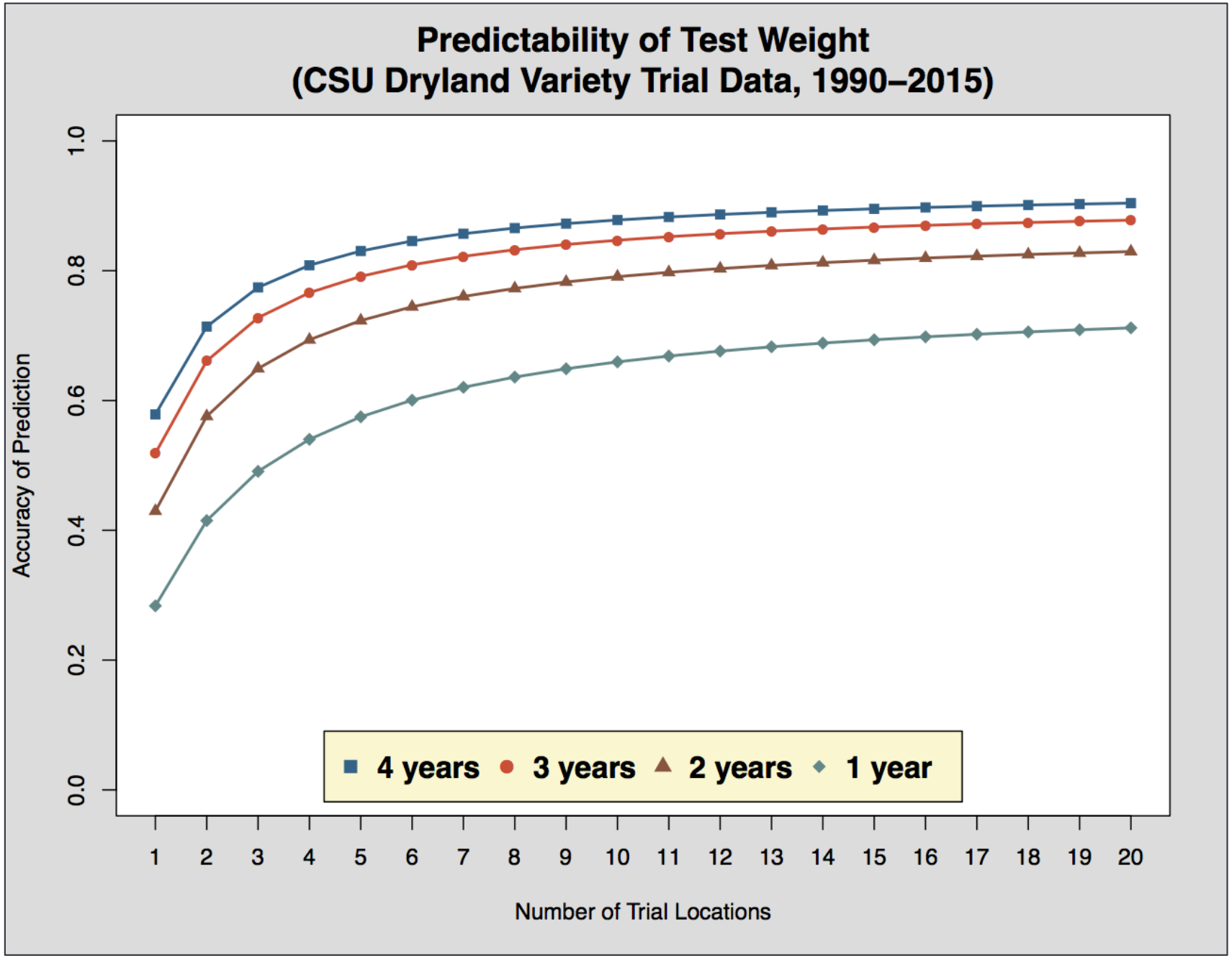
Sources of Variation in Variety Testing
(CSU Dryland Variety Trial Data, 1990–2015)



So What Does This Tell Us?

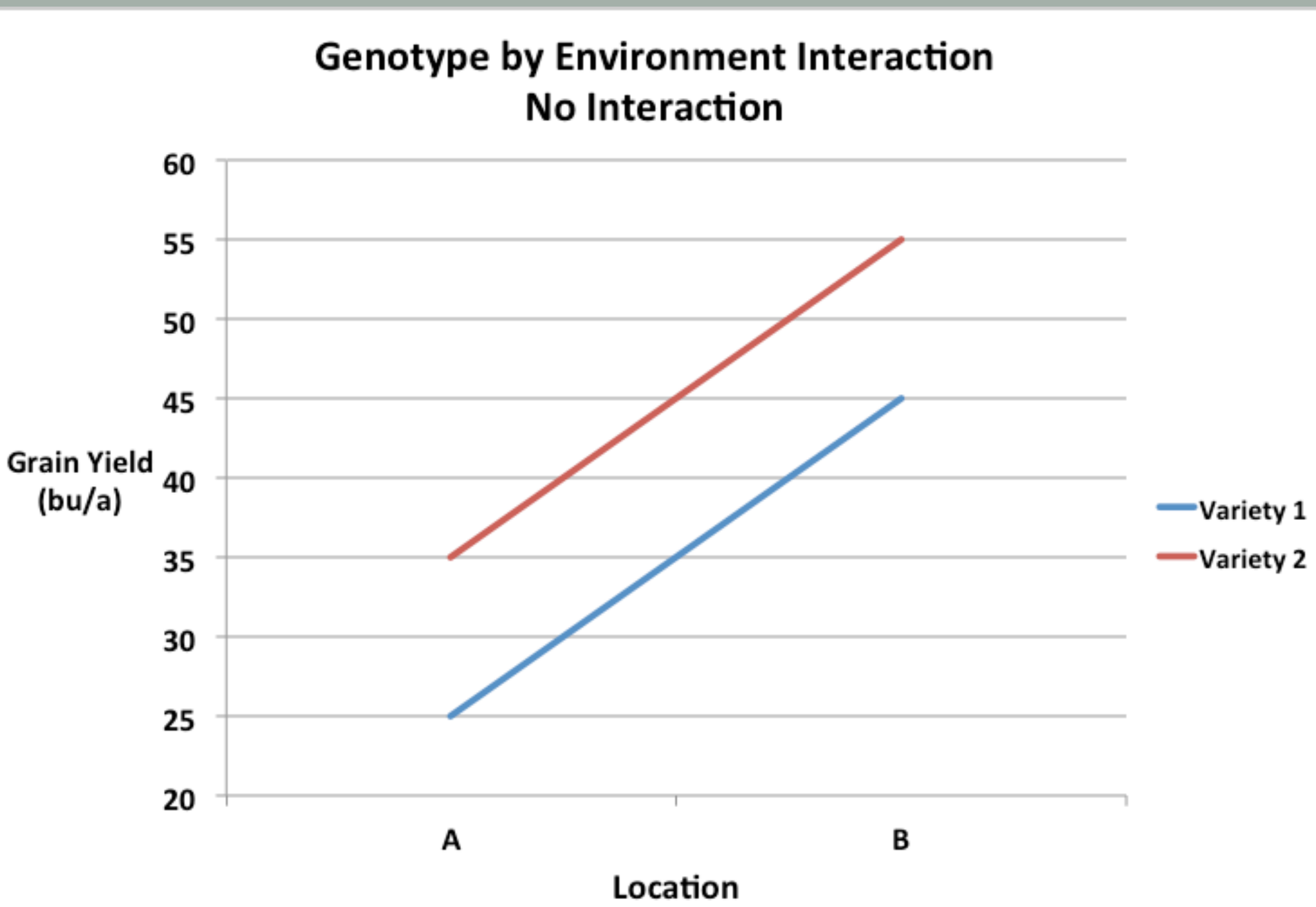
- Partitioning of Trial Variance
  - Variation attributed to test entries (varieties) is a relatively small part of the total variation (7%).
  - The largest portion (75%) is due to non-genetic effects.
  - Interactions between the variety and the environment are larger than the variety effect itself (18%).
  - The interactions compromise variety testing (and breeding).
- Questions
  - Given the magnitude of these interactions, how many years should we test to get an accurate assessment?
  - Given their magnitude, how many trial locations provide the most accurate assessment?

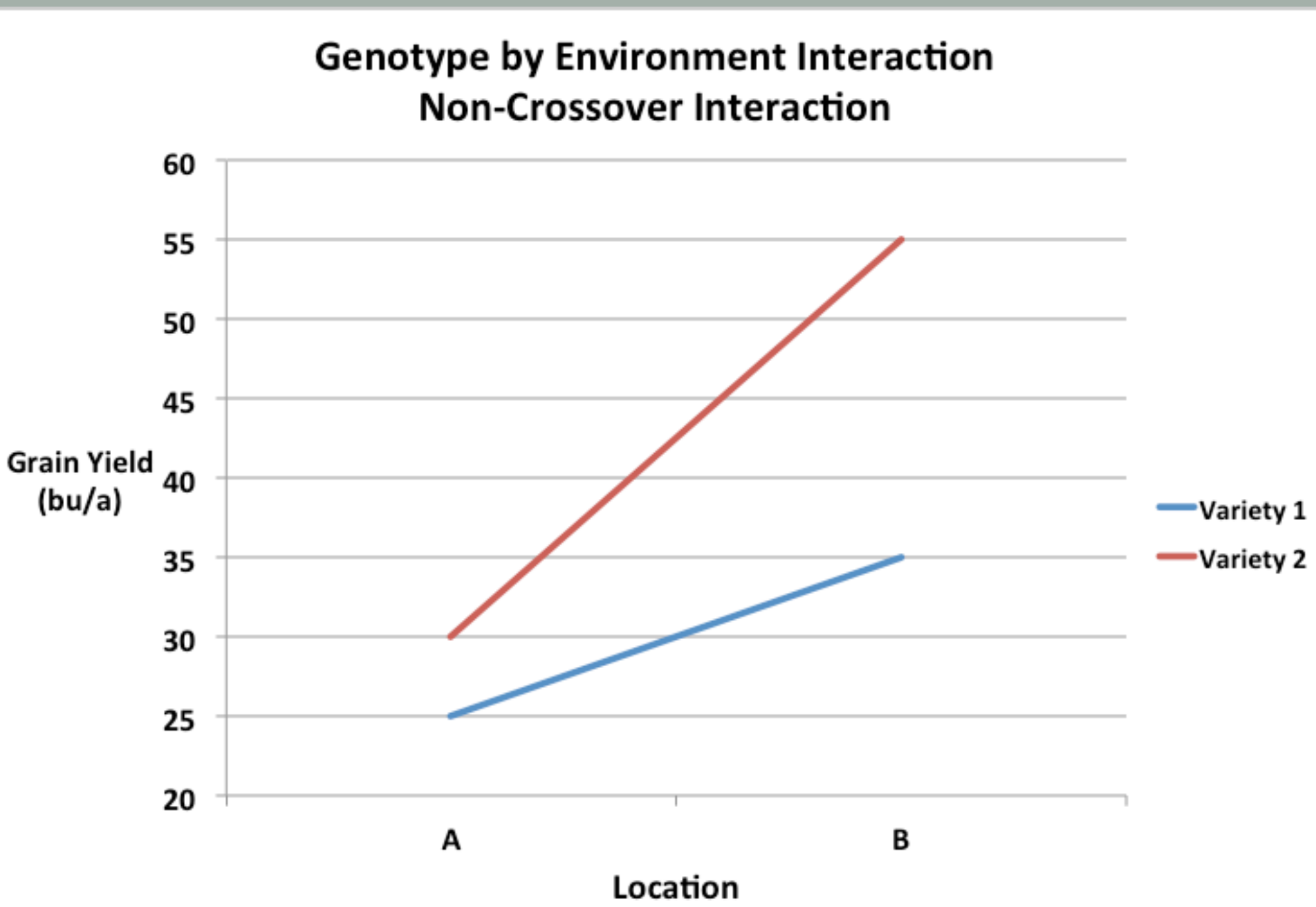

Predictability of Grain Yield
(CSU Dryland Variety Trial Data, 1990–2015)
Accuracy of Prediction
0.0
0.2
0.4
0.6
0.8
1.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Number of Trial Locations
4 years
3 years
2 years
1 year

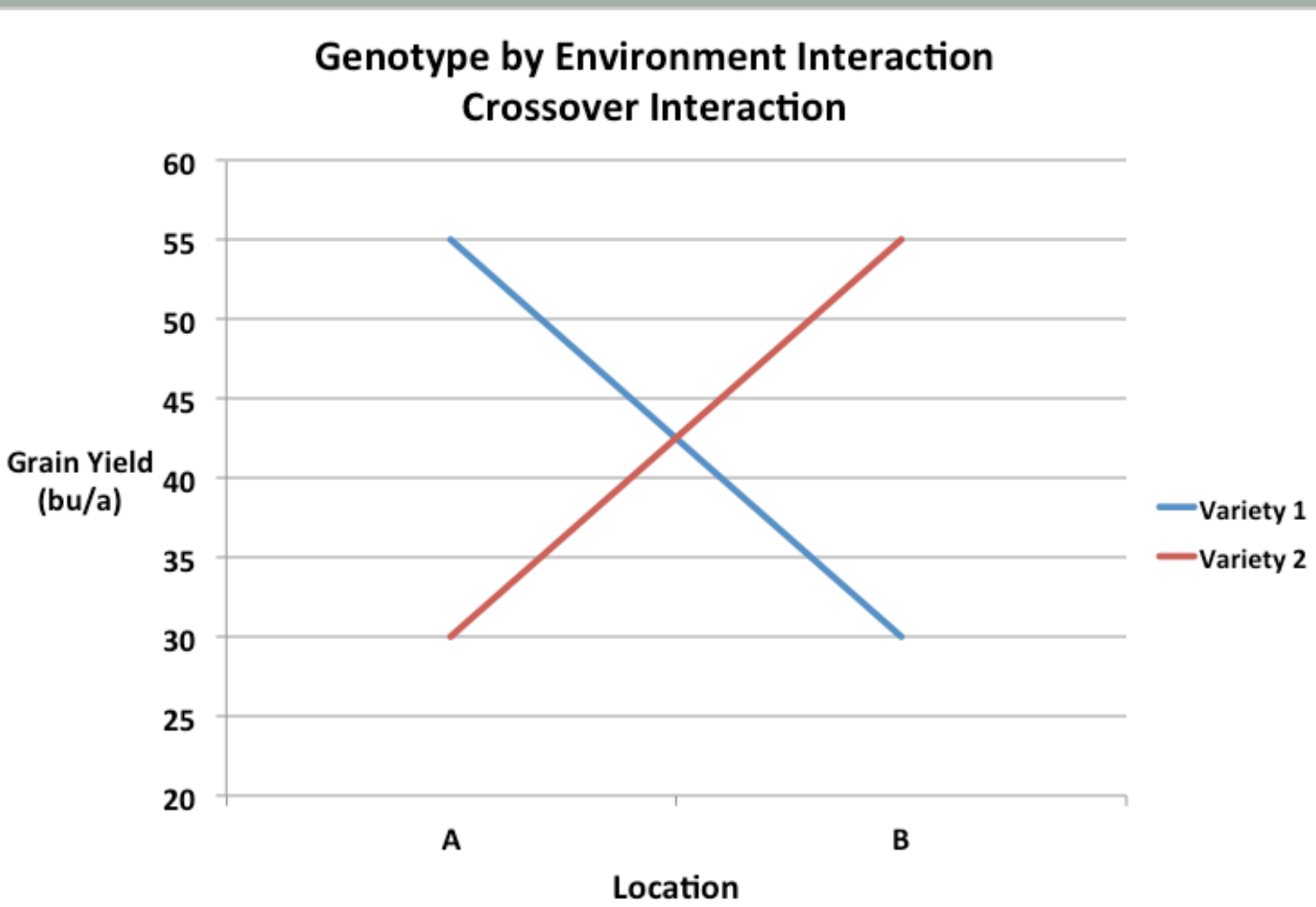

Predictability of Test Weight
(CSU Dryland Variety Trial Data, 1990–2015)
Accuracy of Prediction
0.0
0.2
0.4
0.6
0.8
1.0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
Number of Trial Locations
4 years
3 years
2 years
1 year

Interactions Involving Varieties

- Interactions between the variety and the test environment reduce progress through breeding and compromise variety selection decisions.
- *Genotype x environment interaction* (GxE) – the difference in the relative performance (i.e. yield) of varieties across different environments.
- Questions
  - What does GxE look like in a general sense?
  - What does GxE look like with regard to the variety's response to Colorado's highly variable environments?
  - How can our knowledge of GxE be used to help make more accurate variety selection decisions?

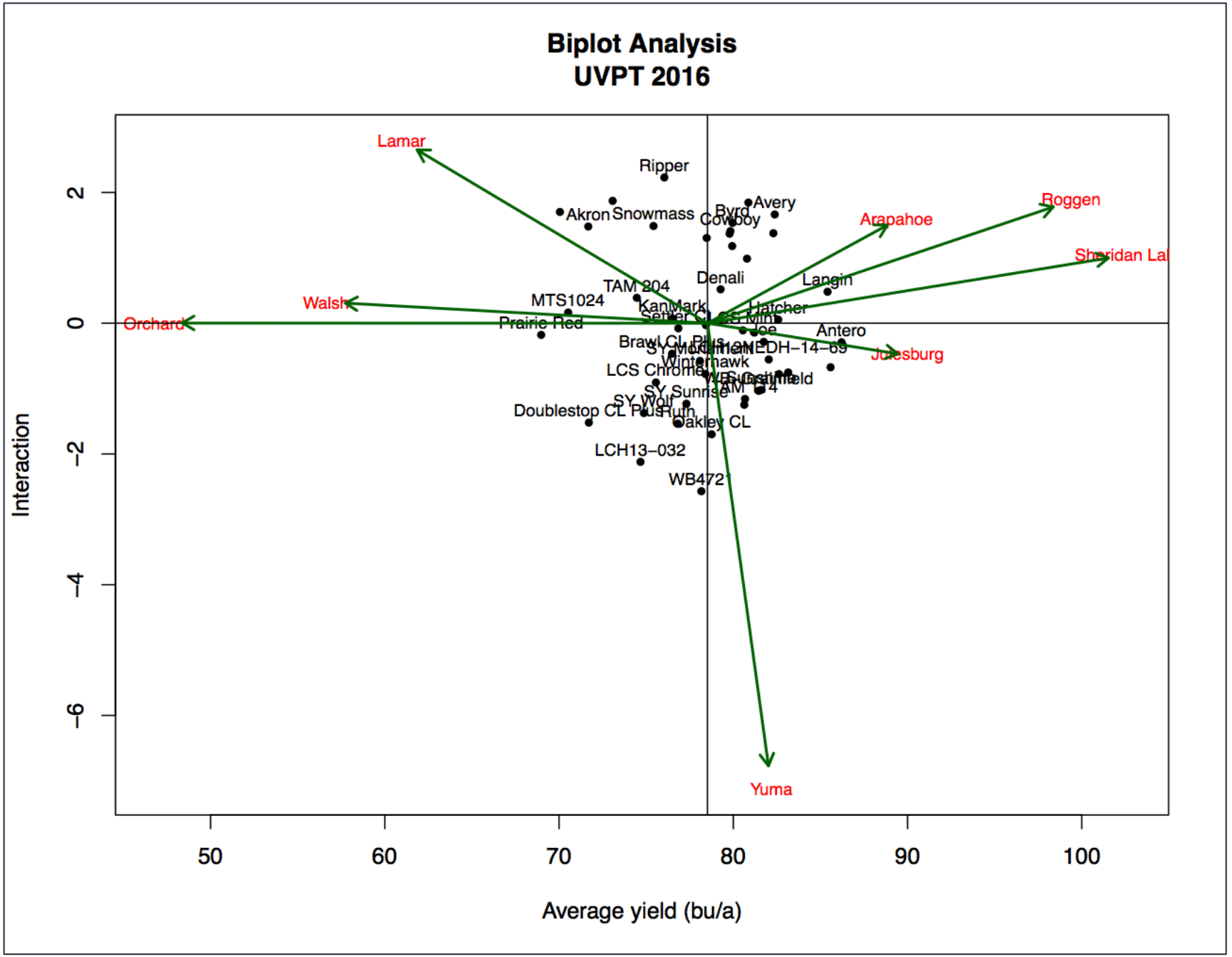

Genotype by Environment Interaction
No Interaction
60
55
50
45
40
35
30
25
20
Grain Yield (bu/a)
A
B
Location
Variety 1
Variety 2

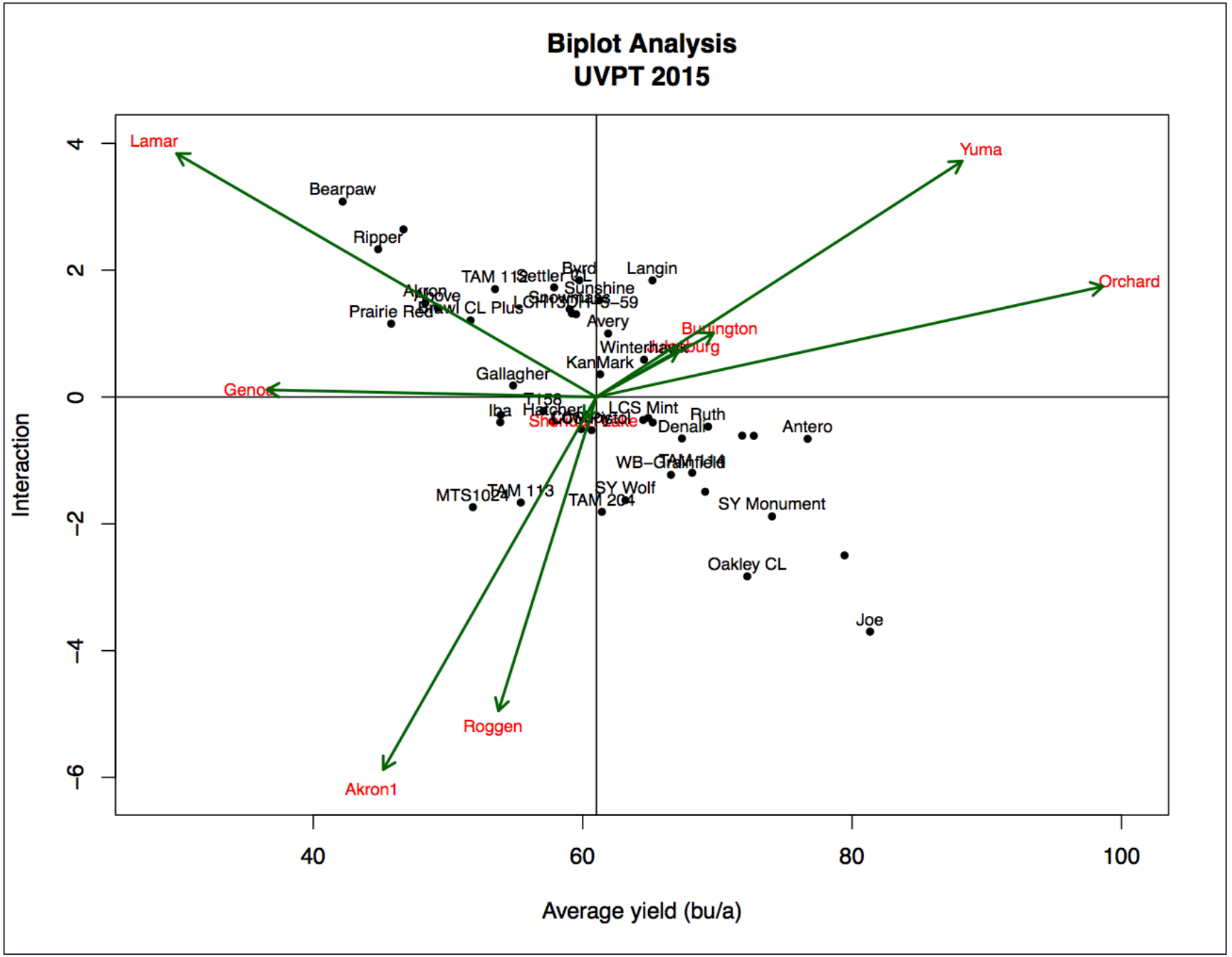

Genotype by Environment Interaction
Non-Crossover Interaction
60
55
50
45
40
35
30
25
20
Grain Yield (bu/a)
A
B
Location
Variety 1
Variety 2

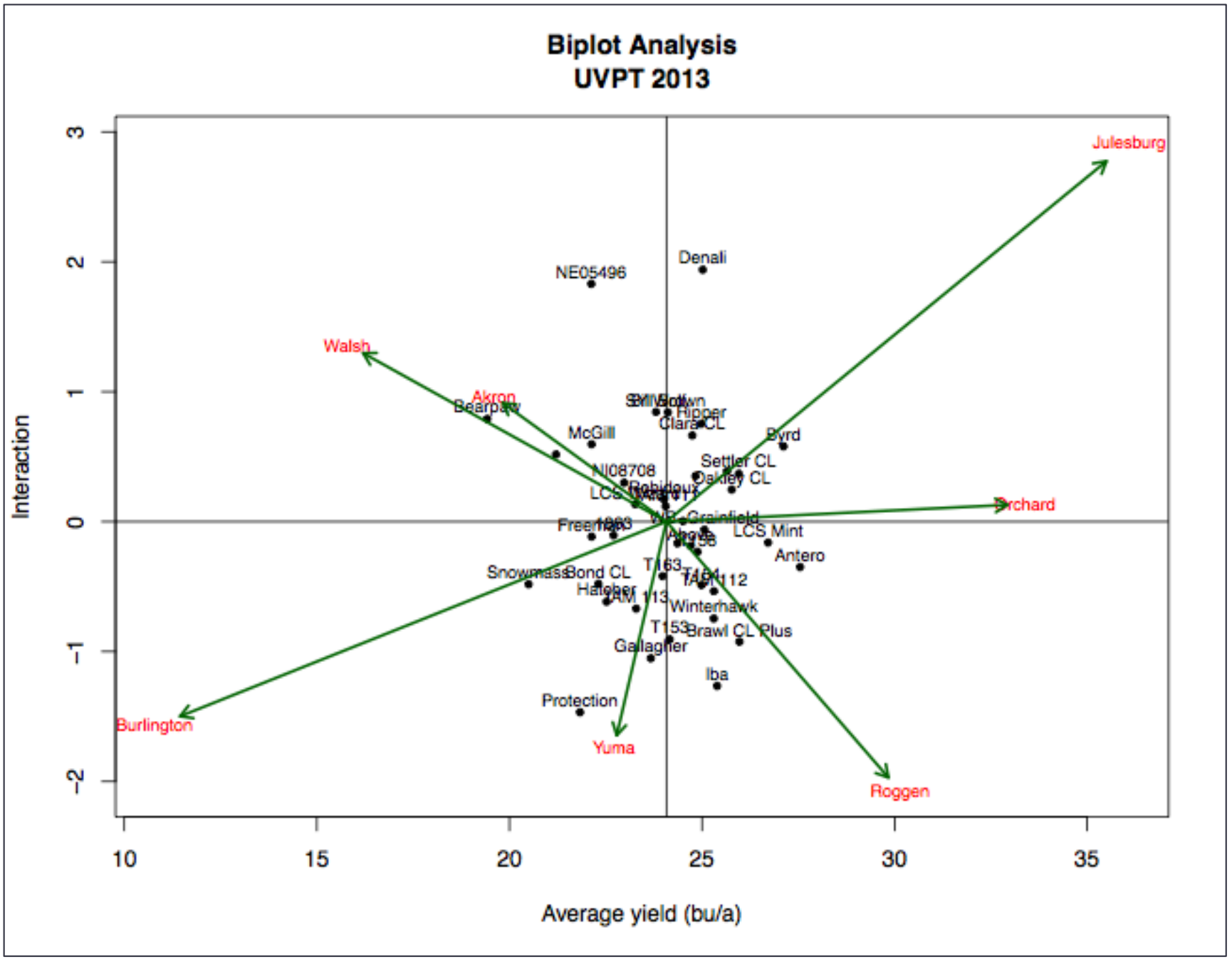

Genotype by Environment Interaction
Crossover Interaction
60
55
50
45
40
35
30
25
20
Grain Yield (bu/a)
A
B
Location
Variety 1
Variety 2

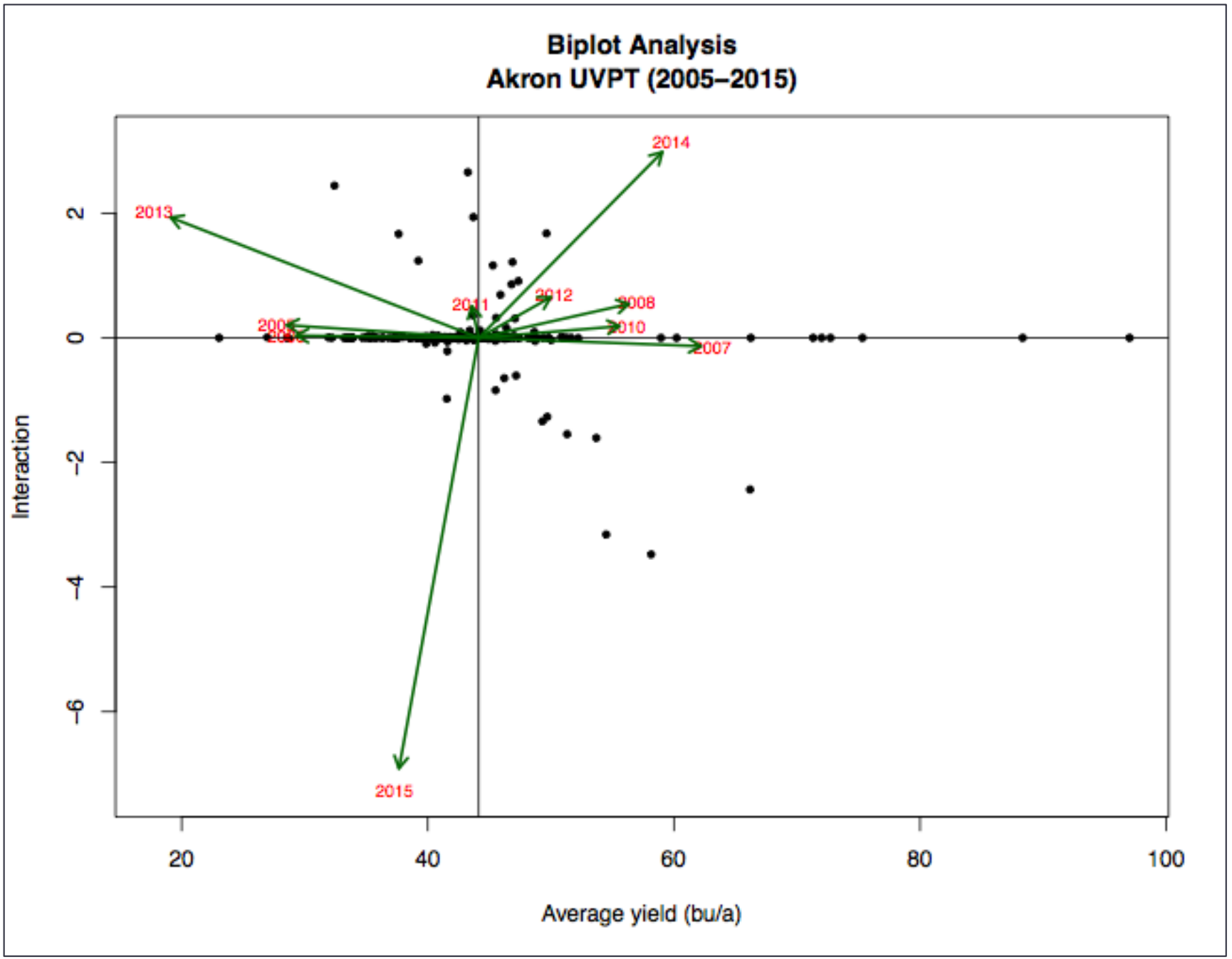
Genotype x Environment Interaction

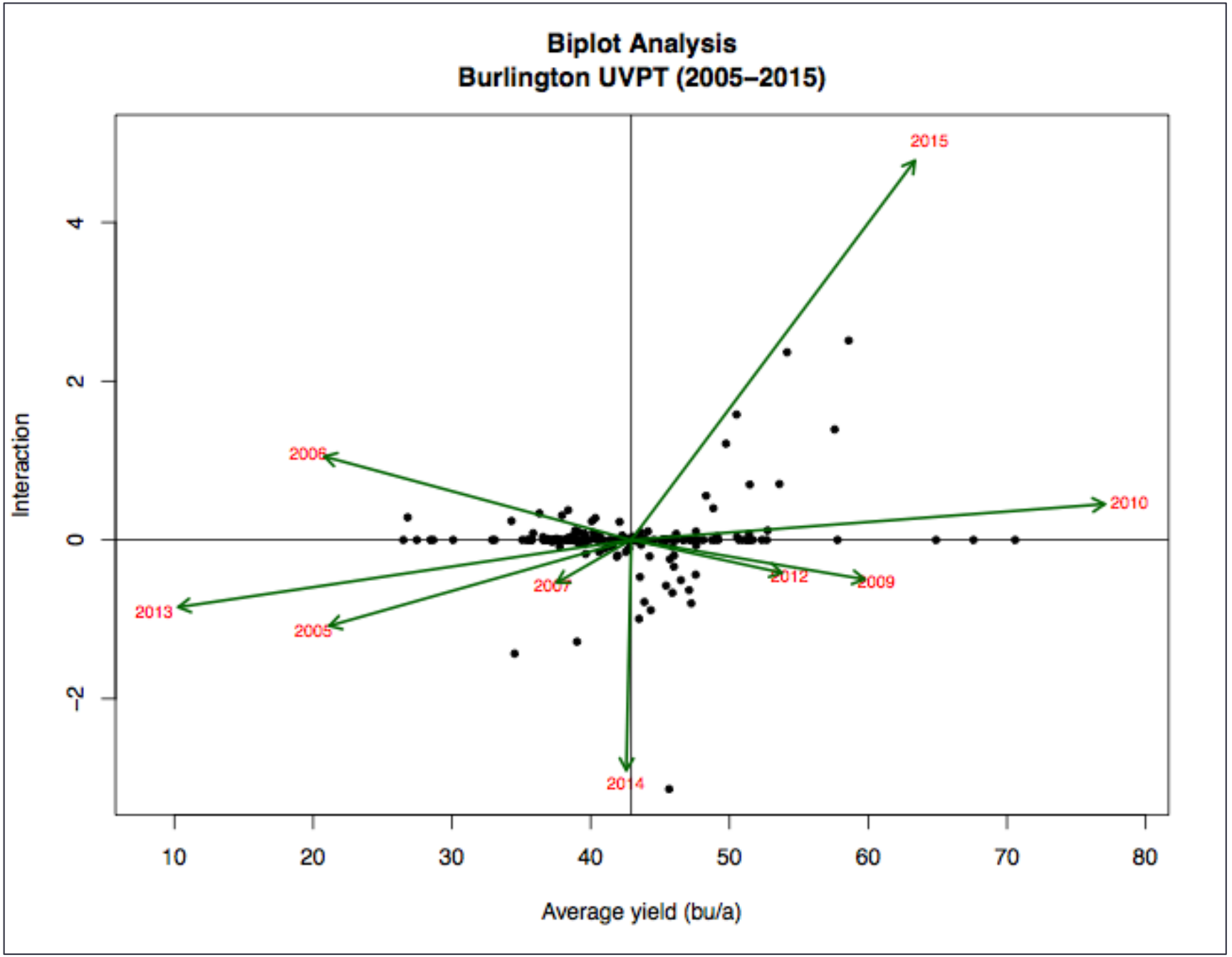
- In reality, response patterns among test entries across years and locations are much more complex.
- In any given year or set of data all different types and patterns of GxE interaction are present.
- AMMI analysis – additive main effects and multiplicative interaction (or French: *ami* = friend)
  - Widely used statistical procedure for assessing GxE interaction in plant breeding.
  - Allows visualization of the effects of both the environment and the genotype (variety) on the same plot.
  - Allows visualization of the interaction.


Biplot Analysis
UVPT 2016
Lamar
Ripper
Akron
Snowmass
Avery
Byrd
Cowboy
Roggen
Arapahoe
Sheridan La
Denali
Langin
TAM 204
Walsh
MTS1024
Hatcher
Orchard
Prairie Red
Antero
LDH-14-69
Julesburg
Winterhawk
LCS Chrome
SY Sunrise
SY Wolf
Doublestop CL Plus
Ruth
Oakley CL
LCH13-032
WB472
Yuma
Interaction
2
0
-2
-4
-6
50
60
70
80
90
100
Average yield (bu/a)


Biplot Analysis
UVPT 2015
Lamar
Yuma
Orchard
Genos
Roggen
Akron1
Bearpaw
Ripper
Prairie Red
CL Plus
Avery
Gallagher
Iba
Langin
Sunshine
Buffington
Ruth
Denali
Antero
SY Wolf
SY Monument
TAM 204
MTS1024
Oakley CL
Joe
Interaction
Average yield (bu/a)
4
2
0
−2
−4
−6
40
60
80
100


Biplot Analysis
UVPT 2013
Julesburg
Denali
NE05496
Walsh
Akron
Bearpaw
McGill
Byrd
Settler CL
Oakley CL
Orchard
Grainfield
LCS Mint
Antero
Snowmass
Bond CL
Hatcher
Winterhawk
Brawl CL Plus
Gallagher
Iba
Protection
Burlington
Yuma
Roggen
Interaction
Average yield (bu/a)
3
2
1
0
−1
−2
10
15
20
25
30
35


Biplot Analysis
Akron UVPT (2005–2015)
2014
2013
2011
2012
2008
2010
2007
2015
Interaction
Average yield (bu/a)
2
0
−2
−4
−6
20
40
60
80
100


Biplot Analysis
Burlington UVPT (2005–2015)
Interaction
Average yield (bu/a)
2015
2010
2009
2012
2007
2006
2013
2005
2014
4
2
0
−2
10
20
30
40
50
60
70
80

This is All Very Interesting, But So What?

- Field trialing for wheat breeding – and wheat variety testing – is imperfect. But it's the best we have.
- Some traits are more predictable than others, like test weight. Some are more complex, like grain yield.
- Predictability improves with increased testing (years and trial locations). So use all the data available.
- Geography is not a very good predictor of the presence of interaction. Restricting geography restricts the accuracy of comparisons & prediction.
- Variety performance is very complicated.

Home Varieties Database What's New Links

Colorado Wheat Variety Database

Database Main Page | Wheat Variety Information | Single Location Trial Data | Multiple Location Trial Data | Head-to-Head Comparisons

Welcome!

The CSU Crop Variety Testing Program, under the leadership of Dr. Jerry Johnson, annually conducts winter wheat variety trials at multiple locations throughout Colorado. The Colorado Wheat Variety Database provides complete access to variety information and data from these trials in addition to official state variety trials in adjacent states (Kansas, Nebraska, Wyoming).

The database may be used to find up-to-date wheat variety information, display data from individual trial locations, generate summaries across multiple trial locations and years, and generate head-to-head comparisons for varieties of interest. Click any of the above tabs to get started!

Now updated with 2016 Colorado Variety Trial data!

http://ramwheatdb.com

Colorado Wheat Variety Database

Head-to-Head Comparisons

To display a head-to-head variety comparison, select the desired varieties from the pull downs, and use the check boxes below to specify which datasets will be used.

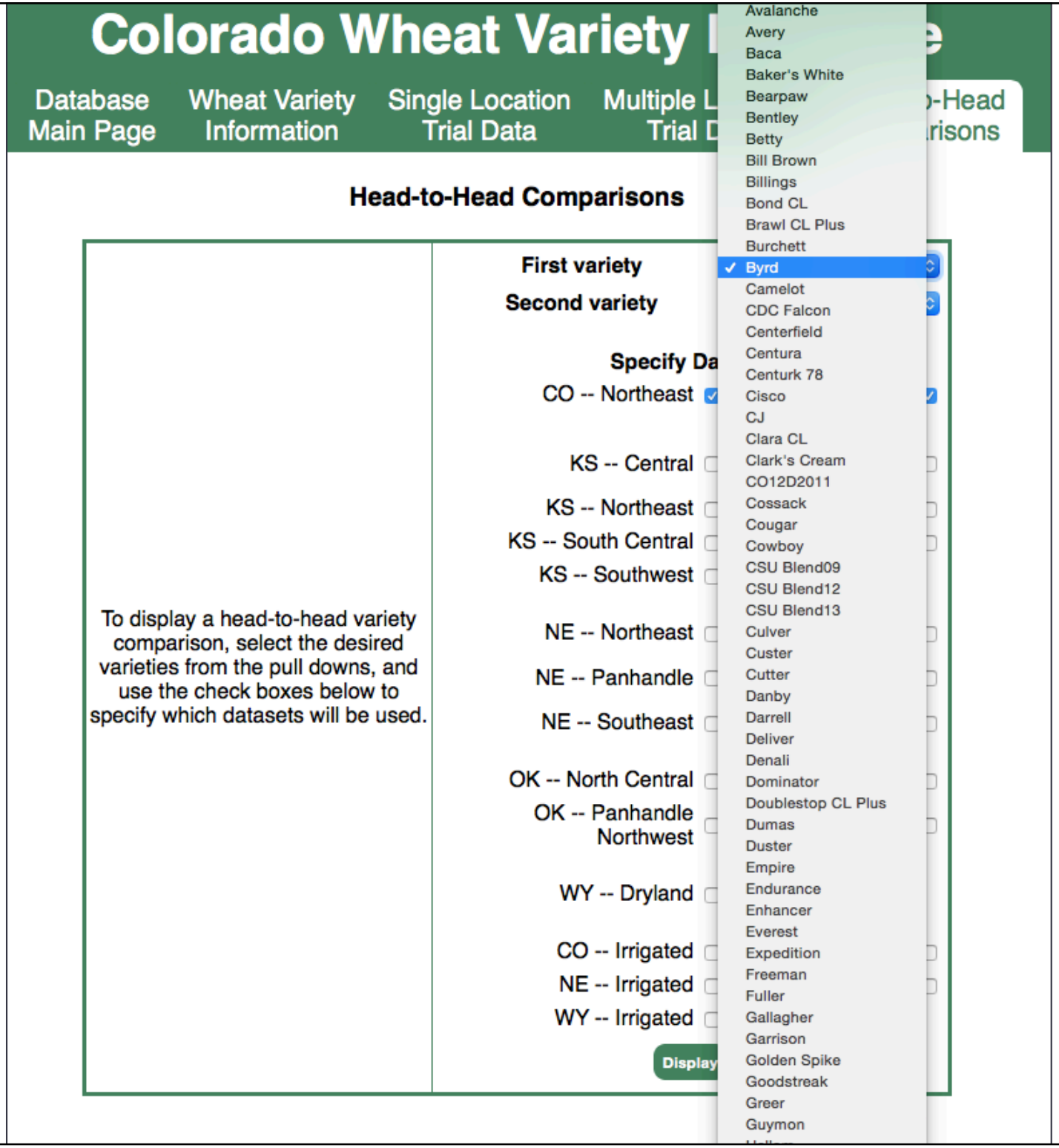
First variety Byrd

Second variety Avery

Specify Dataset

- CO -- Northeast ☑
- CO -- Southeast ☑
- KS -- Central ☐
- KS -- North Central ☐
- KS -- Northeast ☐
- KS -- Northwest ☐
- KS -- South Central ☐
- KS -- Southeast ☐
- KS -- Southwest ☐
- NE -- Northeast ☐
- NE -- Organic ☐
- NE -- Panhandle ☐
- NE -- South Central ☐
- NE -- Southeast ☐
- NE -- West Central ☐
- OK -- North Central ☐
- OK -- Northeast ☐
- OK -- Panhandle Northwest ☐
- OK -- Southwest ☐
- WY -- Dryland ☐
- CO -- Irrigated ☐
- KS -- Irrigated ☐
- NE -- Irrigated ☐
- OK -- Irrigated ☐
- WY -- Irrigated ☐

Display


Colorado Wheat Variety
Database Main Page
Wheat Variety Information
Single Location Trial Data
Head-to-Head Comparisons
To display a head-to-head variety comparison, select the desired varieties from the pull downs, and use the check boxes below to specify which datasets will be used.
First variety
Second variety
Specify Da
CO -- Northeast
KS -- Central
KS -- Northeast
KS -- South Central
KS -- Southwest
NE -- Northeast
NE -- Panhandle
NE -- Southeast
OK -- North Central
OK -- Panhandle Northwest
WY -- Dryland
CO -- Irrigated
NE -- Irrigated
WY -- Irrigated
Display
Avalanche
Avery
Baca
Baker's White
Bearpaw
Bentley
Betty
Bill Brown
Billings
Bond CL
Brawl CL Plus
Burchett
Byrd
Camelot
CDC Falcon
Centerfield
Centura
Centurk 78
Cisco
CJ
Clara CL
Clark's Cream
CO12D2011
Cossack
Cougar
Cowboy
CSU Blend09
CSU Blend12
CSU Blend13
Culver
Custer
Cutter
Danby
Darrell
Deliver
Denali
Dominator
Doublestop CL Plus
Dumas
Duster
Empire
Endurance
Enhancer
Everest
Expedition
Freeman
Fuller
Gallagher
Garrison
Golden Spike
Goodstreak
Greer
Guymon

Colorado Wheat Variety Database

Head-to-Head Comparisons

To display a head-to-head variety comparison, select the desired varieties from the pull downs, and use the check boxes below to specify which datasets will be used.

First variety Byrd

Second variety Avery

Specify Dataset

- CO -- Northeast ☑
- CO -- Southeast ☑
- KS -- Central ☐
- KS -- North Central ☐
- KS -- Northeast ☐
- KS -- Northwest ☐
- KS -- South Central ☐
- KS -- Southeast ☐
- KS -- Southwest ☐
- NE -- Northeast ☐
- NE -- Organic ☐
- NE -- Panhandle ☐
- NE -- South Central ☐
- NE -- Southeast ☐
- NE -- West Central ☐
- OK -- North Central ☐
- OK -- Northeast ☐
- OK -- Panhandle Northwest ☐
- OK -- Southwest ☐
- WY -- Dryland ☐
- CO -- Irrigated ☐
- KS -- Irrigated ☐
- NE -- Irrigated ☐
- OK -- Irrigated ☐
- WY -- Irrigated ☐

Display

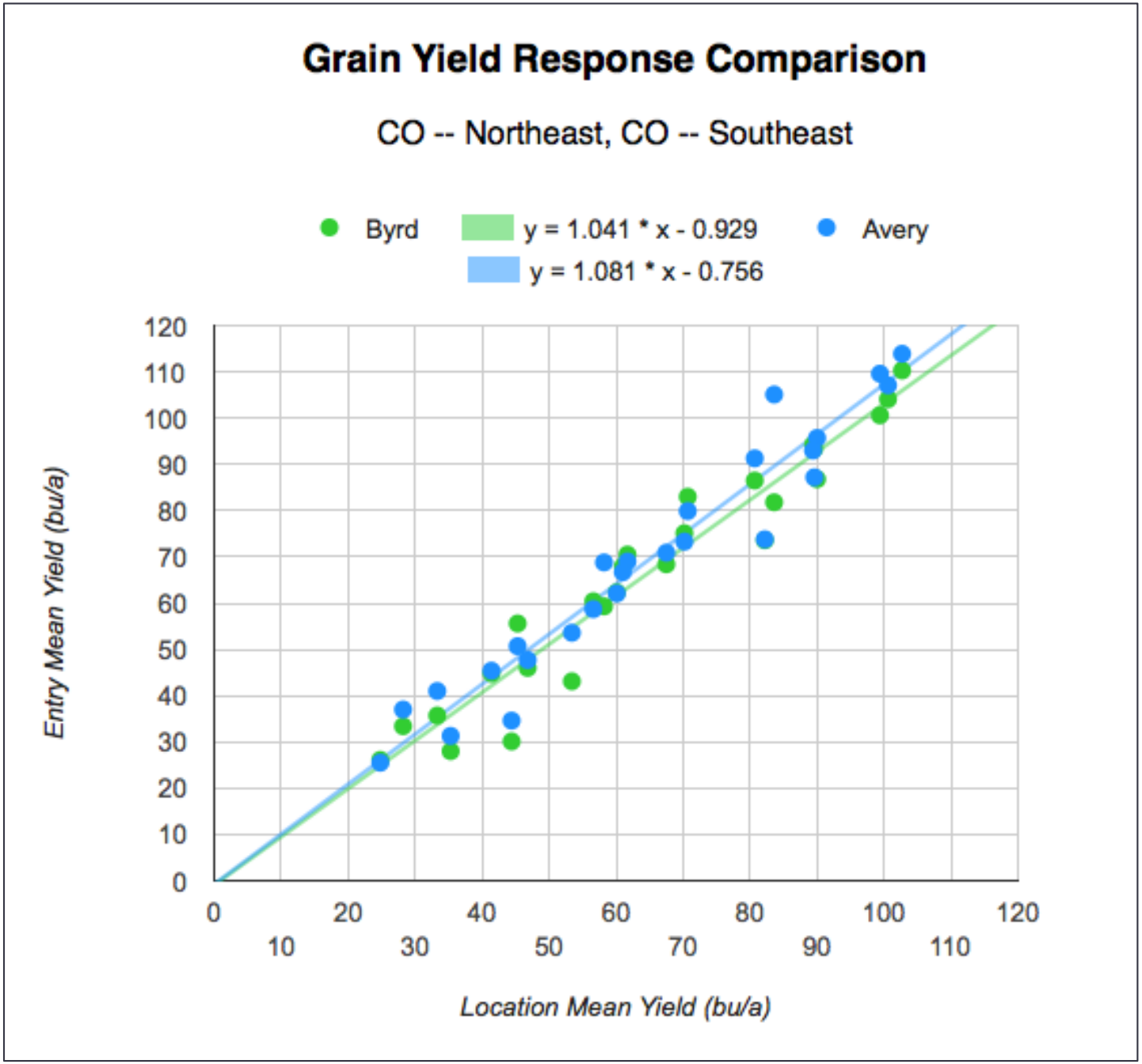
Byrd vs Avery
CO -- Northeast
CO -- Southeast

Dataset: 26 replicated trials
Yield: Avery is superior 16 times (62%)
Test Weight: Byrd is superior 17 times (77%)

				Grain Yield		Test Weight	
State	Region	Location	Year	Byrd	Avery	Byrd	Avery
CO	Northeast	Akron	2014	**70.5**	69.0	59.5	**60.8**
CO	Northeast	Akron	2015	30.1	**34.6**	**54.6**	51.8
CO	Northeast	Burlington	2014	**55.6**	50.7	**61.1**	60.8
CO	Northeast	Burlington	2015	**75.1**	73.3	52.6	**53.1**
CO	Northeast	Genoa	2015	28.0	31.3		
CO	Northeast	Julesburg	2014	81.8	105.1	**63.7**	62.9
CO	Northeast	Julesburg	2015	68.4	70.9	59.0	59.0
CO	Northeast	Julesburg	2016	86.8	95.7	**59.5**	58.5
CO	Northeast	Orchard	2014	59.3	68.8	**64.4**	63.6
CO	Northeast	Orchard	2015	104.1	107.1	**61.8**	61.3
CO	Northeast	Orchard	2016	46.0	47.7	**60.6**	60.3
CO	Northeast	Roggen	2014	86.5	91.3	**60.7**	60.6
CO	Northeast	Roggen	2015	43.1	53.6	**60.5**	58.8
CO	Northeast	Roggen	2016	100.6	109.6	**62.9**	62.4
CO	Northeast	Yuma	2014	**83.0**	79.9	**63.4**	63.1
CO	Northeast	Yuma	2015	**93.4**	87.2	**59.4**	59.0
CO	Northeast	Yuma	2016	73.6	**73.8**	**59.2**	57.8
CO	Southeast	Arapahoe	2016	**94.2**	93.0	56.8	**57.3**
CO	Southeast	Lamar	2014	**26.1**	25.5		
CO	Southeast	Lamar	2015	33.4	**37.0**		
CO	Southeast	Lamar	2016	**67.9**	66.7	**57.7**	57.5
CO	Southeast	Sheridan Lake	2014	44.8	**45.4**	60.4	**61.2**
CO	Southeast	Sheridan Lake	2015	**62.3**	62.1		
CO	Southeast	Sheridan Lake	2016	110.3	**113.9**	**60.7**	59.3
CO	Southeast	Walsh	2014	35.7	**41.0**	**59.6**	59.3
CO	Southeast	Walsh	2016	**60.4**	58.7	**57.1**	55.4
Averages				66.2	**69.0**	**59.8**	59.3
Percentage of Trial Wins*				38.5%	**50.0%**		
Statistically Different?**					**YES**		**YES**

View Grain Yield Regression Plot | View Test Weight Regression Plot

1. Percentage Superior Comparison
2. Year-Location Comparison (better=**bold**)
3. "Trial Wins" Comparison (top LSD group)
4. Overall Comparison


Grain Yield Response Comparison
CO -- Northeast, CO -- Southeast
Byrd
y = 1.041 * x - 0.929
Avery
y = 1.081 * x - 0.756
Entry Mean Yield (bu/a)
Location Mean Yield (bu/a)
0
10
20
30
40
50
60
70
80
90
100
110
120

Colorado Wheat Variety Database

Database Main Page | Wheat Variety Information | Single Location Trial Data | Multiple Location Trial Data | Head-to-Head Comparisons

Wheat Variety Information

To search by variety name, select a variety and a display method on the right and click "Display." To compare two different varieties, select another variety from the second drop-down menu.

First variety

Second (optional)

Display ◉ Form Layout ○ Tabular Layout

Display

To search by variety characteristics, specify the desired search criteria and display method, and click "display."

Market Class Hard Red Winter

Heading		**RWA**		**Test Weight**	
Height		**Leaf Rust**		**Milling**	
Coleoptile		**Stripe Rust**	1-3	**Baking**	
Straw		**Wheat Streak**			

Show Key

Display ○ Form Layout ◉ Tabular Layout

Display

Colorado Wheat Variety Database

Database Main Page | Wheat Variety Information | Single Location Trial Data | Multiple Location Trial Data | Head-to-Head Comparisons

Wheat Variety Information

To search by variety name, select a variety and a display method on the right and click "Display." To compare two different varieties, select another variety from the second drop-down menu.

First variety

Second (optional)

Display

- ✓
- 1863
- Above
- Akron
- Ankor
- Antero
- AP502 CL
- Armour
- Aspen
- Avery
- Baca
- Bearpaw
- Bill Brown
- Billings
- Bond CL
- Brawl CL Plus
- Byrd
- Camelot
- Clara CL
- Cowboy
- CSU Blend13
- Danby
- Denali
- Doublestop CL Plus
- Dumas
- Duster
- Endurance
- Enhancer
- Everest

To search by variety characteristics, specify the desired sea
method, and click "display."

Market Class

Heading **RWA** **T**

Height **Leaf Rust**

Coleoptile **Stripe Rust**

Straw **Wheat Streak**

Show Key

Display ○ Form Layout ◉ Tabular Layout

Colorado Wheat Variety Database

Database Main Page | Wheat Variety Information | Single Location Trial Data | Multiple Location Trial Data | Head-to-Head Comparisons

Wheat Variety Summary

Switch to Tabular View

Variety	Byrd
Origin	CSU
Release Date	2011
Exp Number	CO06424
Market Class	Hard red winter

Pedigree

TAM 112/CO970547-7

Heading	4	**Height**	5
Coleoptile	7	**Straw**	7
RWA	S	**Leaf Rust**	7
Stripe Rust	7	**Wheat Streak**	6
Test Weight	4	**Milling**	3
Baking	3		

Show Key

Comments: CSU release (2011), marketed by PlainsGold. Excellent drought tolerance and quality. Average test weight and straw strength. Moderately susceptible to stripe rust. Carries wheat curl mite resistance from TAM 112 parent.

Record 1 of 1

Previous Next

Acknowledgements

Colorado Wheat
Administrative Committee

cwrf