ASD vs Verticillium wilt

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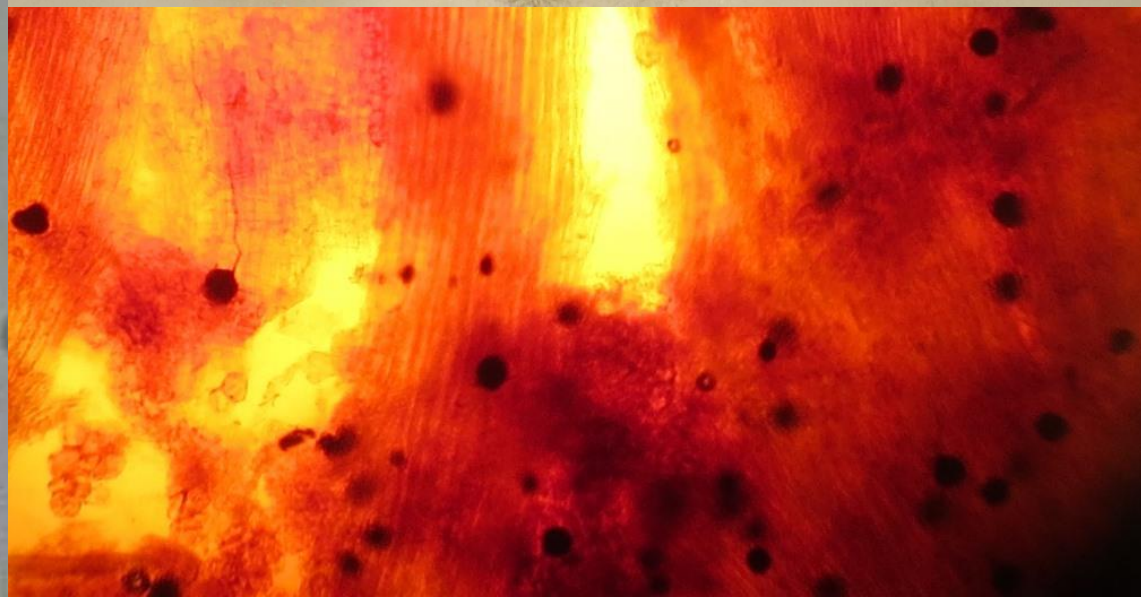
1 mm

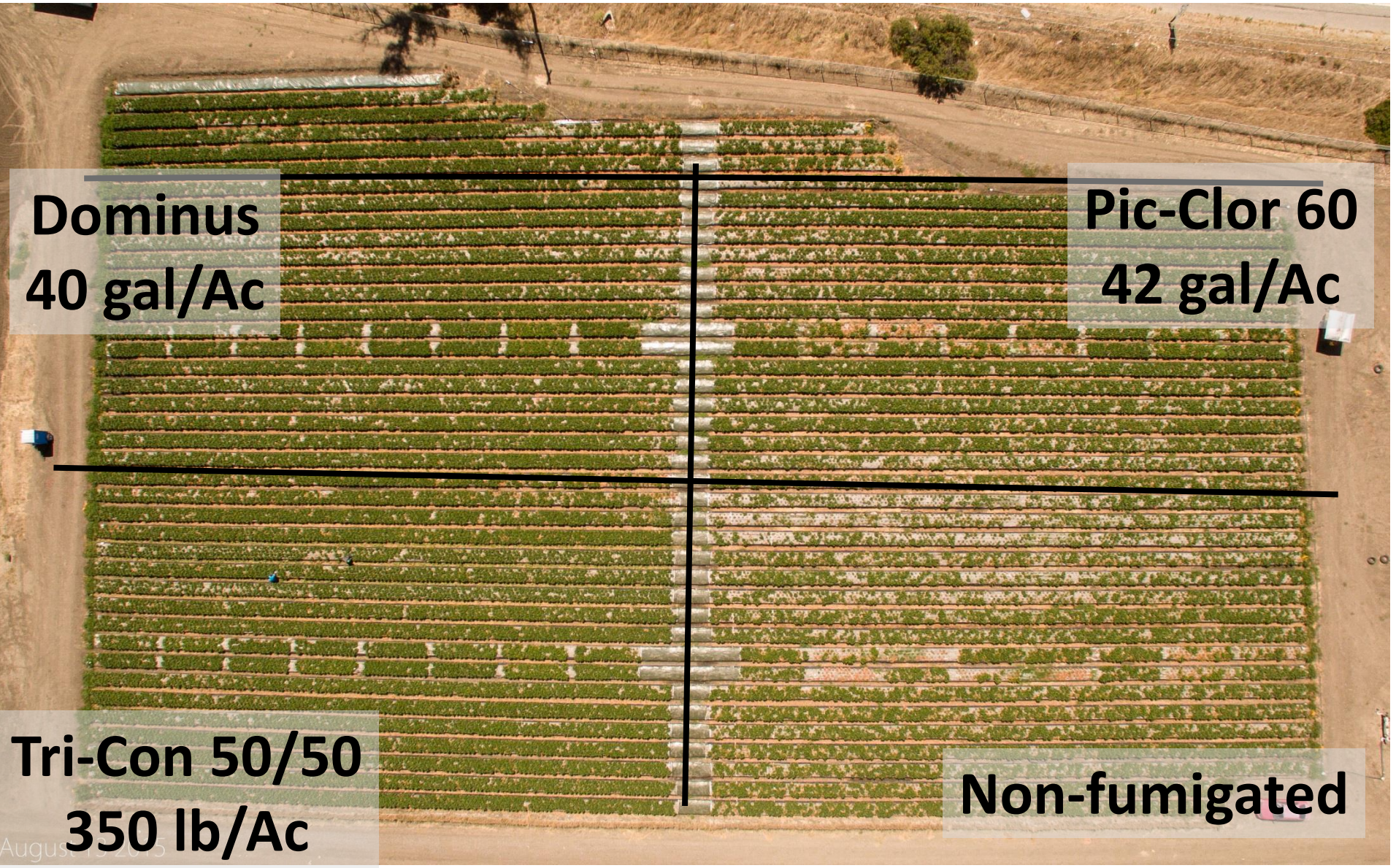

2 mm



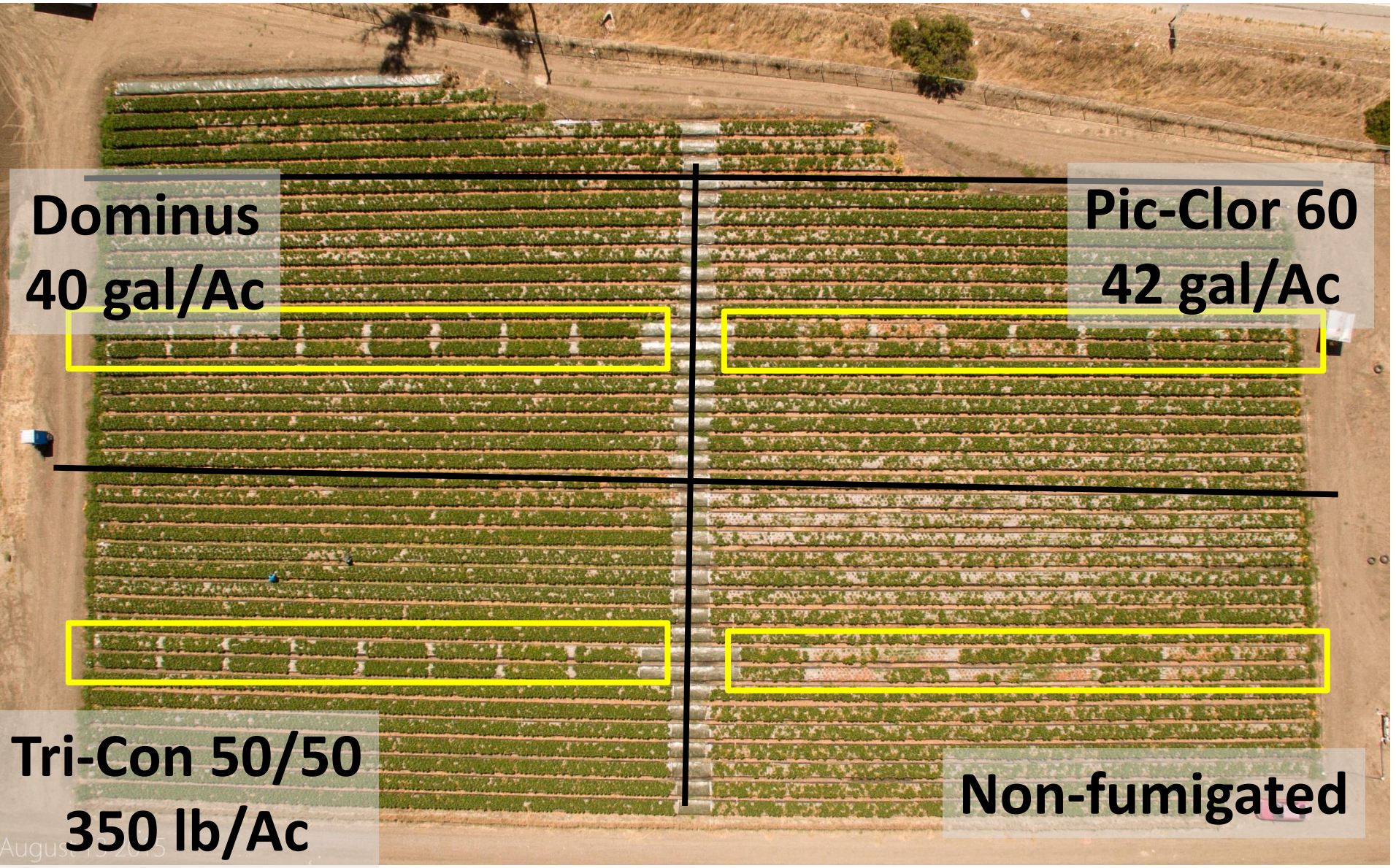
Verticillium wilt (*Verticillium dahliae*)

- **Broad host range (strawberry very susceptible)**
- **Problem in CA for decades**
- **Often problematic in organic fields w/ veg rotations**

Cal Poly Fumigation Trial: 2015



Cal Poly Cultivar Trial: 2015



Cal Poly Cultivar Trial: 2015

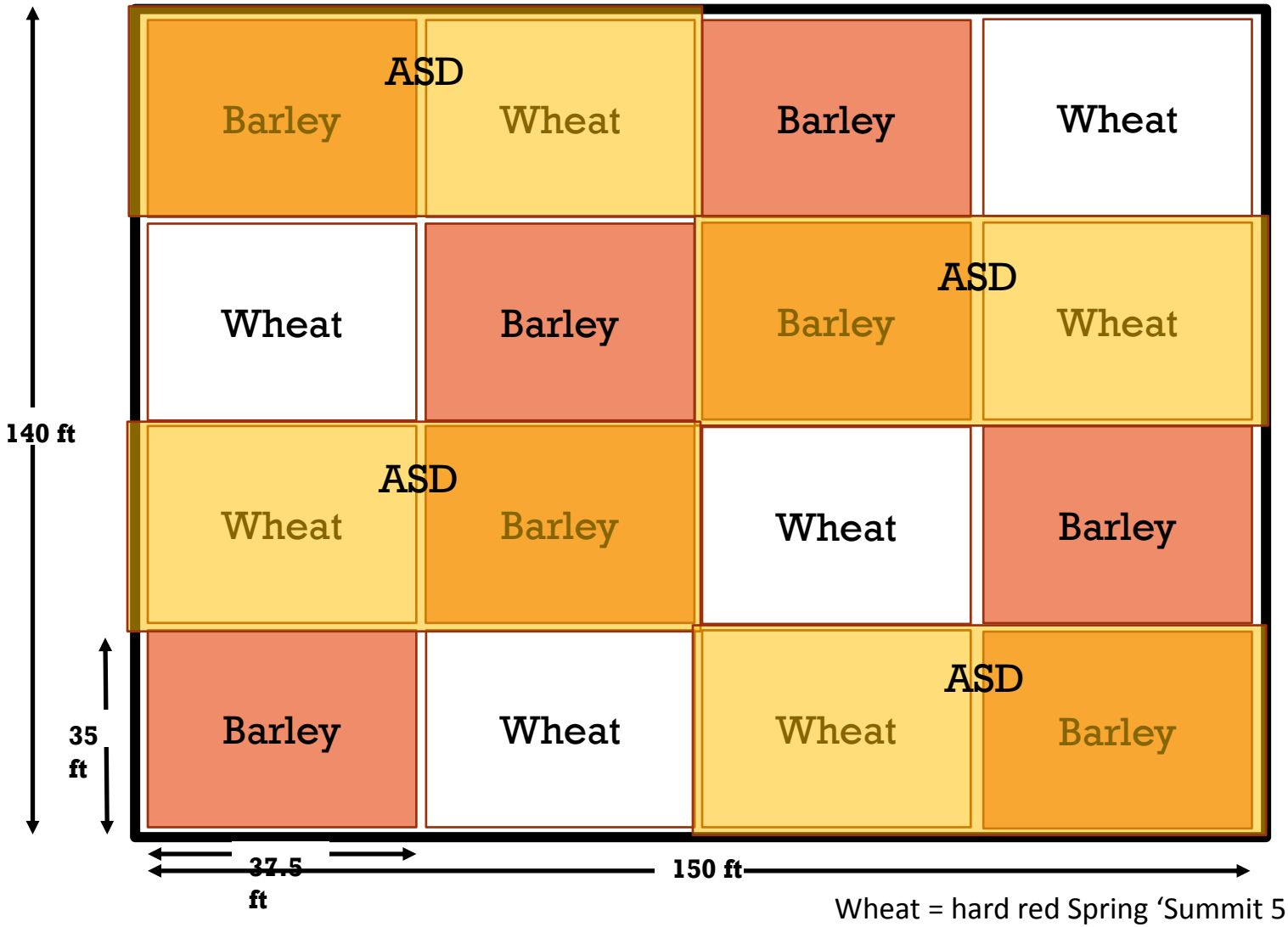
Cal Poly Cultivar Trial: 2015

Cultivar	Disease incidence (% plant mortality)[z] 12 Jun	11 Sep	AUDPC[y]	Yield (g/plant)[z] Early season[xz]	Late season[vz]	Total[uz]
Portola……..	44.4 a	98.4 a	8536.3 a	652.6 c	21.9 b	674.5 c
Monterey……..	27.8 ab	89.9 a	6572.5 b	759.3 b	69.6 b	828.9 b
Albion……..	4.8 c	46.0 b	2409.6 c	709.2 bc	136.5 a	845.7 b
San Andreas……	10.1 bc	34.7 b	2623.4 c	923.5 a	170.9 a	1094.4 a
P Values	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Verticillium wilt cultivar trial: 2017

90 different cultivars and elite selections

Verticillium wilt ASD/cover crop trial: 2016



Field seeded: 3 Dec 2015; Seeding rate: 100 lb/acre

Wheat = hard red Spring 'Summit 515'
Barley = Stockford

Verticillium wilt ASD/cover crop trial: 2016

Verticillium wilt ASD/cover crop trial: 2016

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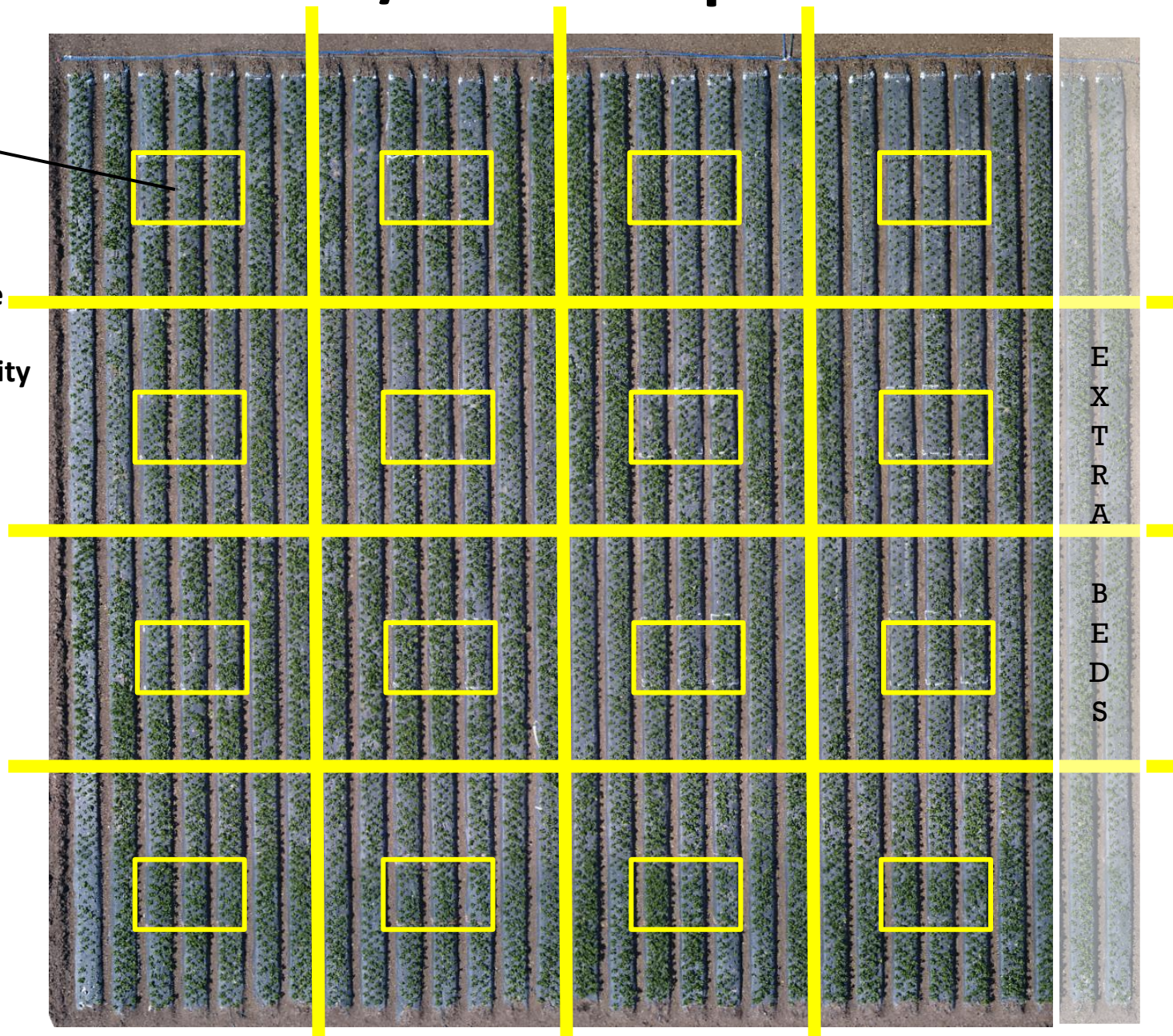
June 10, 2016

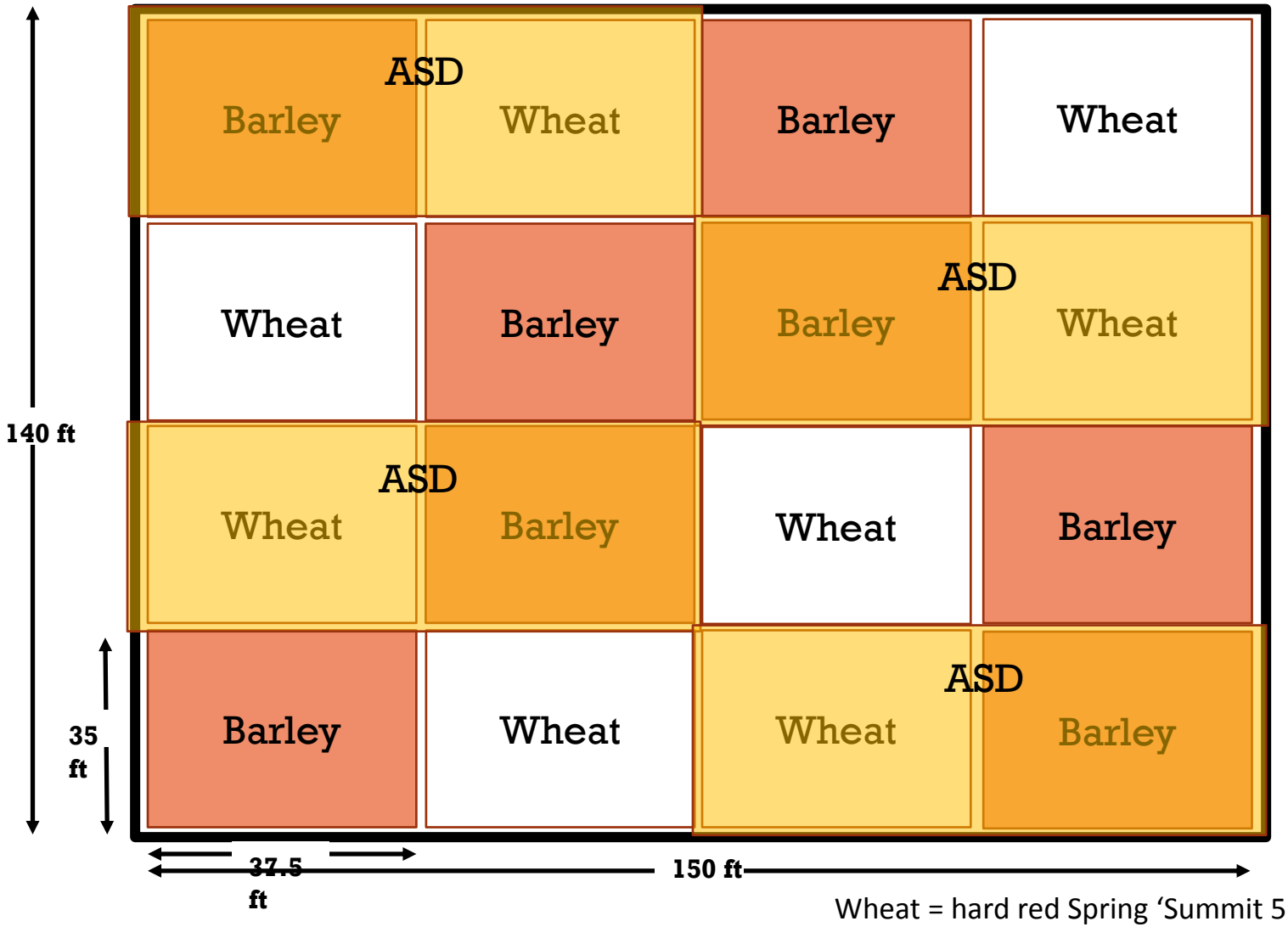
Verticillium wilt ASD/cover crop trial: 2016

Verticillium wilt ASD/cover crop trial: 2016



- Percent green foliage
- Percent plant mortality
- Verticillium counts
- Yield

Verticillium wilt ASD/cover crop trial: 2016



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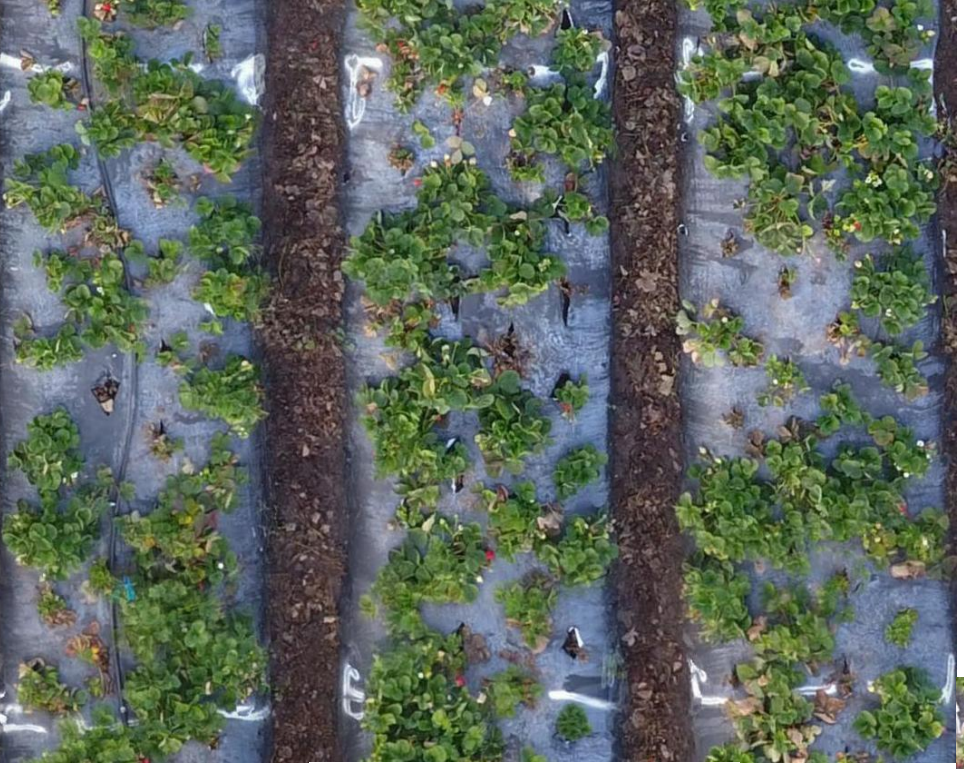
Verticillium wilt ASD/cover crop trial: 2016

Oct 6, 2016

Verticillium wilt ASD/cover crop trial: 2016

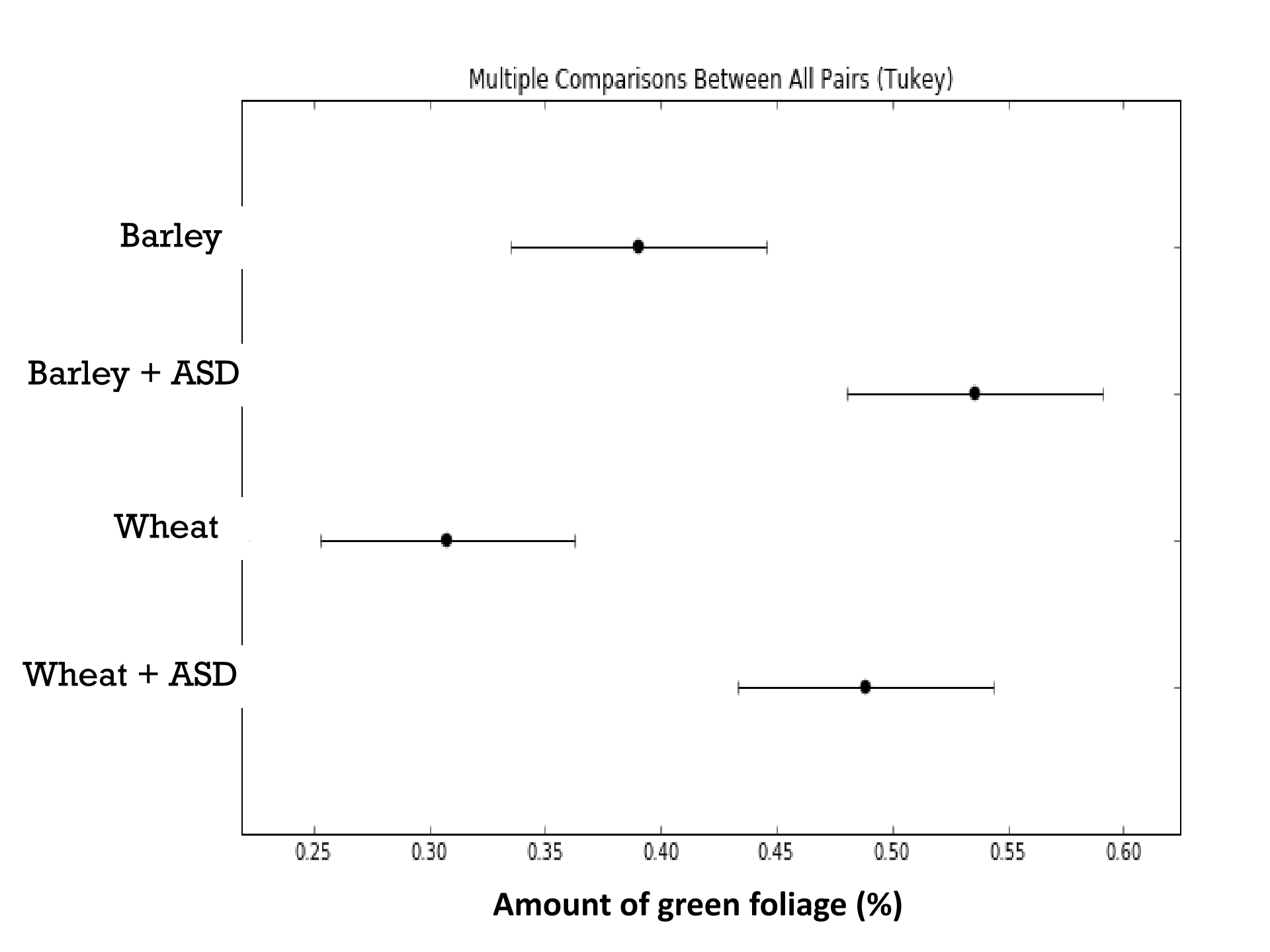
Oct 6, 2016

Dec. 9, 2016

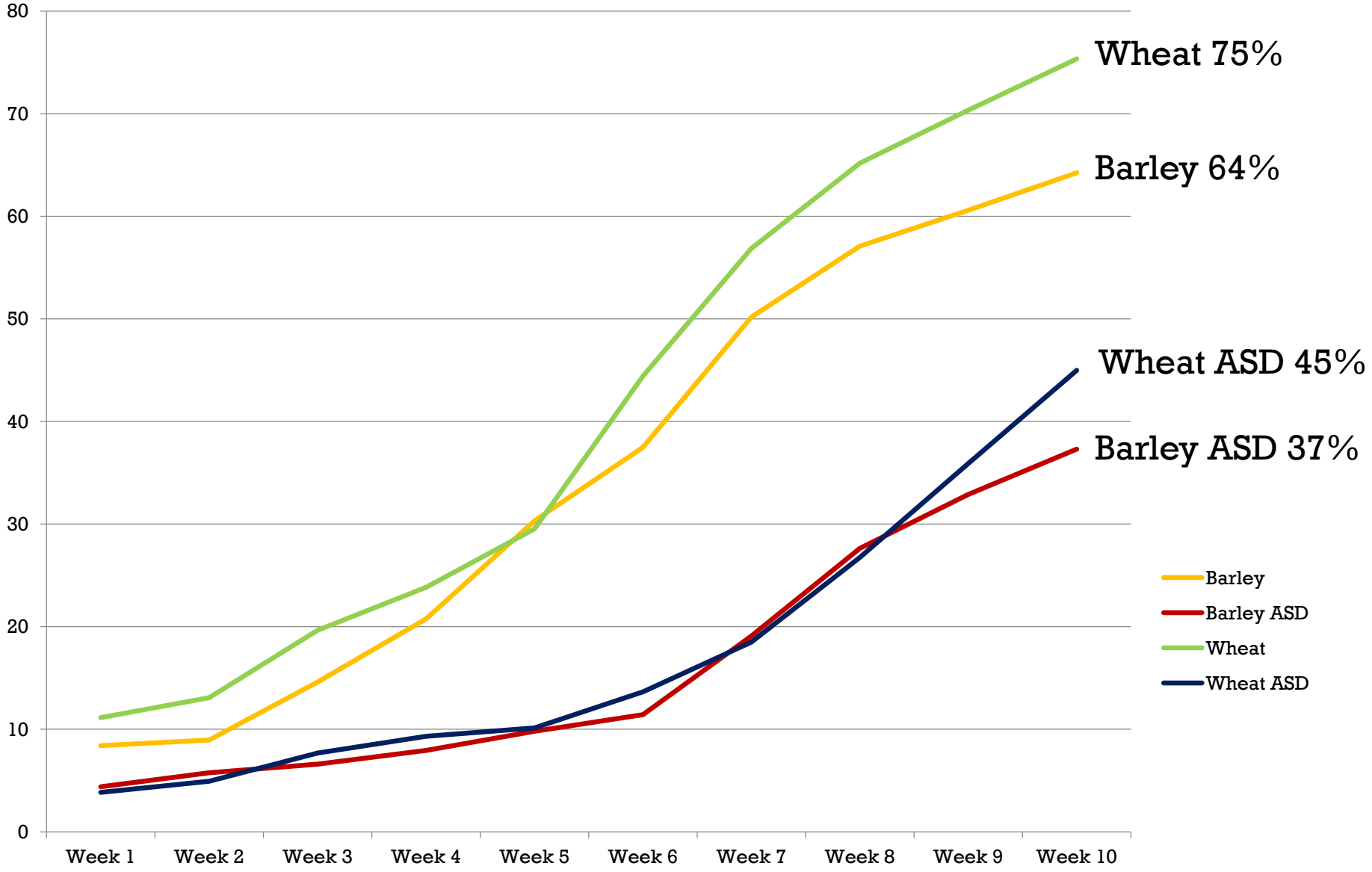


wheat ASD

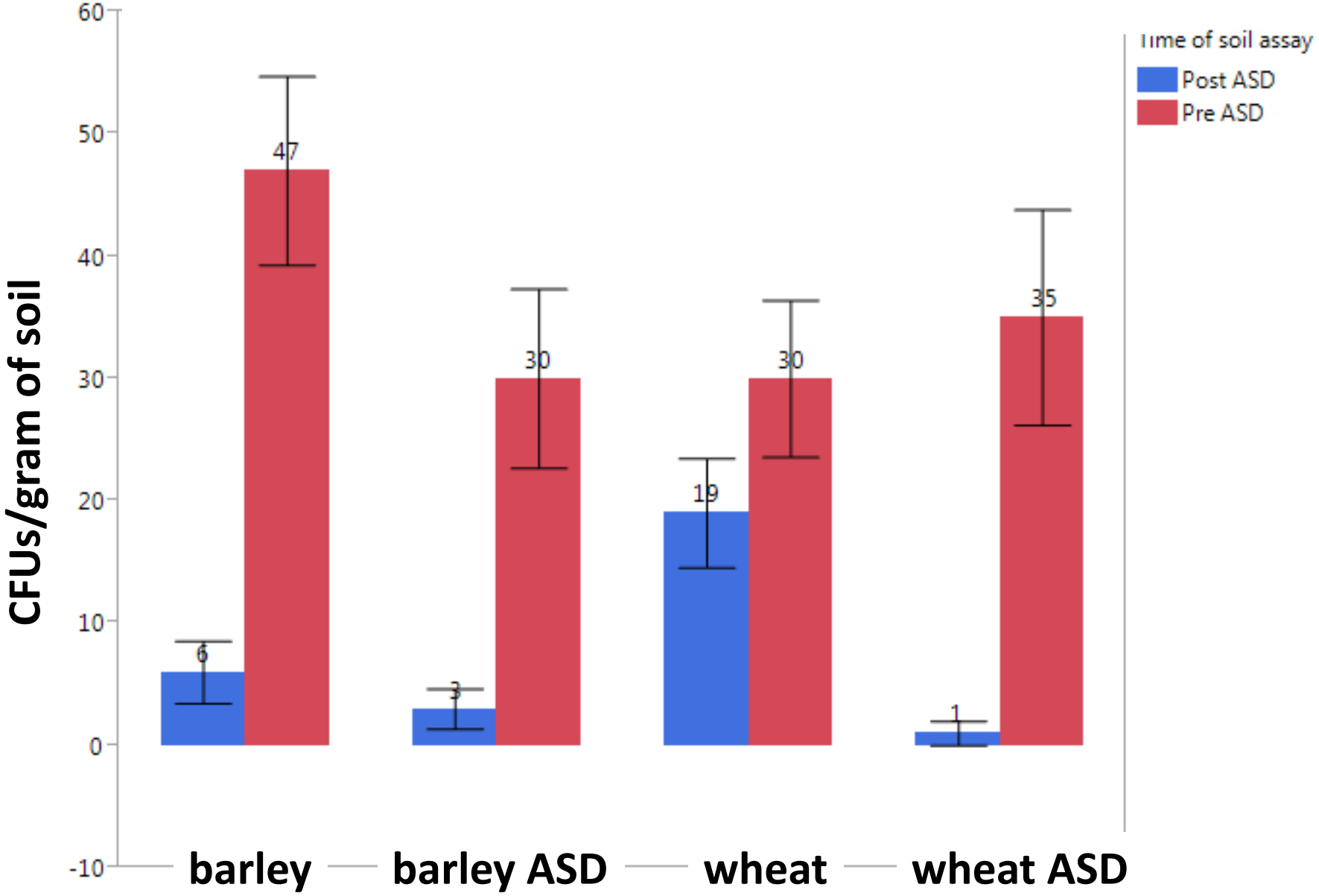
wheat

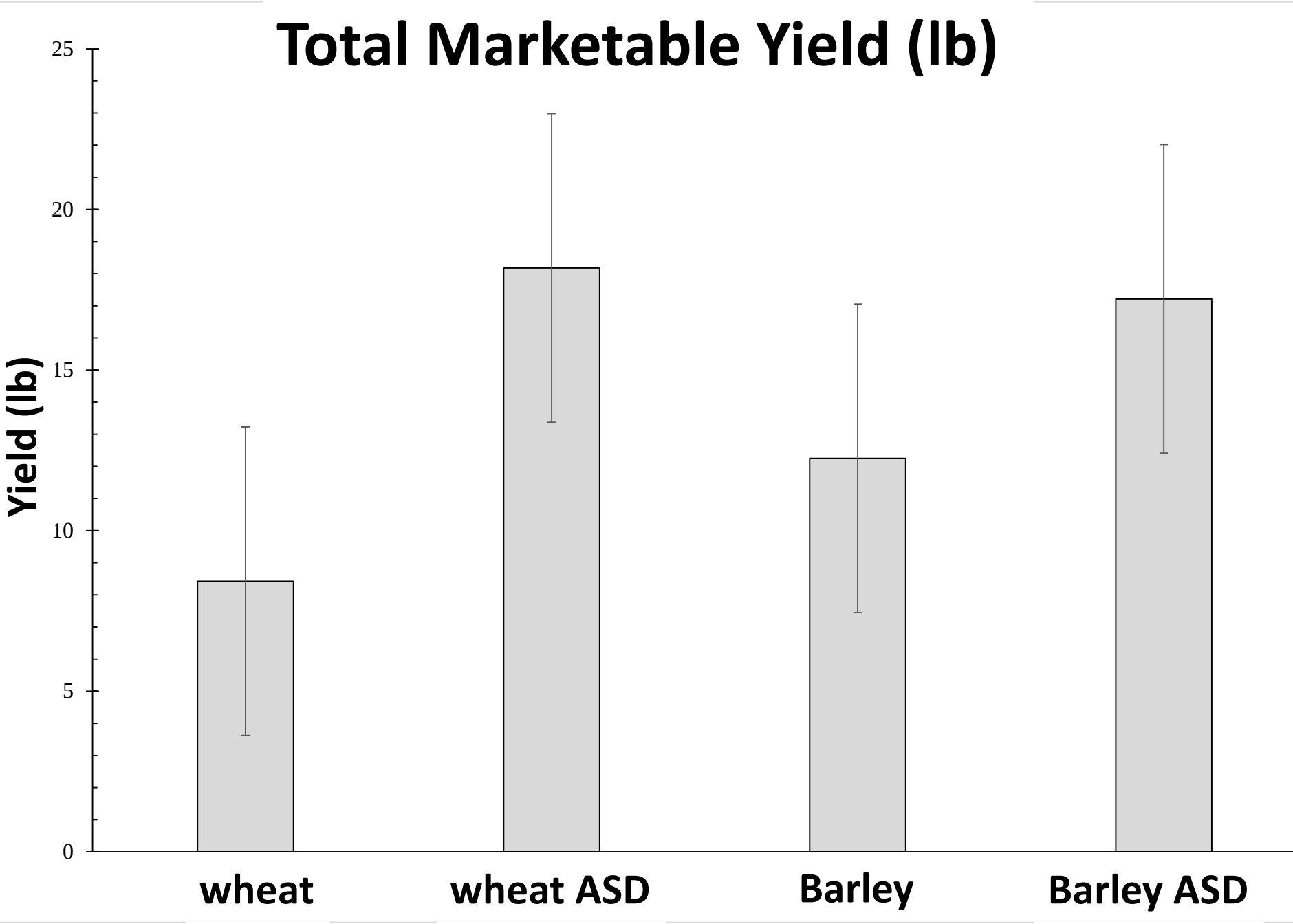

Multiple Comparisons Between All Pairs (Tukey)
Barley
Barley + ASD
Wheat
Wheat + ASD
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
Amount of green foliage (%)

Percent plant death over 10 weeks



Verticillium counts per gram of soil




Total Marketable Yield (lb)
Yield (lb)
25
20
15
10
5
0
wheat
wheat ASD
Barley
Barley ASD

Summary of ASD/cover crop trial: 2016

- Combining ASD with a cover crop was more effective at increasing yield and reducing plant death due to Verticillium;
- The most effective treatment was barley plus ASD; barley plus ASD had the lowest plant death and the highest yield;
- The most effective cover crop on its own was barley;
- All treatments reduced Verticillium counts in the soil.
- **Is 37% plant death after 10 weeks acceptable?**

Questions?

Cal Poly Strawberry field day: July 27

Thanks to Gerald Holmes, Ryan Brantley, Ryan Gilmour
Bo Lui, Jeremy Kerfs