

# 2019 Update

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# Dicamba injury to soybeans

- 2017-2018 summary
  - Soybean varieties (conv, LL, RR) differ in their sensitivity to dicamba
  - In ND, it appears that injury affects yields less than further south
  - Severe delays in soybean maturity, reduced plant height, and growing point injury at yield-affecting rates
  - Very low dicamba exposures are not likely to increase yields

# Check





Equal to 0.014 oz Clarity





Equal to 0.14 oz Clarity





Equal to 1.4 oz Clarity



# Leaf tissue tests – 20 DAT

Treatment	Clarity	Dicamba
	oz/a	ppb
Check		5.5
Dicamba R1 fb R2	0.14	65.1
Dicamba R1 fb R2 fb R3	0.14	25.8
Dicamba + Class Act Rideon	0.14	16.9
Dicamba	0.014	4.1
Dicamba	0.14	16.0
Dicamba	1.4	112.4
Glyphosate + dicamba	0.025 + 0.014	7.1
Glyphosate + dicamba	0.25 + 0.14	14.5
Glyphosate + dicamba	2.5 + 1.4	258.3
LSD (0.05)		66.9



# Seed response to dicamba

Treatment	Injury	Injury	Yield	Germination	Protein	Oil	Dicamba
	10 DAT	20 DAT	bu/a	%	%	%	ppb
Check	0.0	0.0	35.5	81.0	36.6	17.6	2.8
Dicamba low	3.3	2.1	31.9	80.2	36.7	17.7	2.4
Dicamba med	10.0	14.6	34.2	81.8	37.1	17.5	9.4
Dicamba high	35.4	51.3	11.4	86.3	38.8	16.2	58.7
LSD (0.05)	6.8	5.7	9.1	NS	0.9	0.5	33.7



# Sequential exposures of dicamba

Treatment	Injury	Injury	Injury	Injury
0.14 oz dicamba	10 DAT	20 DAT	30 DAT	40 DAT
Check	0.0	0.0	0.0	0.0
R1	27.6	28.8	25.0	26.3
R1 + R2	26.3	27.5	23.8	26.3
R1 + R2 + R3	25.0	26.3	25.0	28.8
LSD (0.05)	2.7	4.0	6.0	6.3



# Sequential exposures and yield

Treatment	PM	Pod Height	Plant Height	Test Weight	Yield
0.14 oz dicamba	days	cm	cm	lb/bu	bu/a
Check	106.8	11.5	59.5	54.8	24.3
R1	107.0	8.3	44.0	55.2	22.9
R1 + R2	106.8	8.5	48.0	56.3	23.5
R1 + R2 + R3	106.8	8.0	42.5	54.4	21.4
LSD (0.05)	NS	3.4	6.1	NS	NS

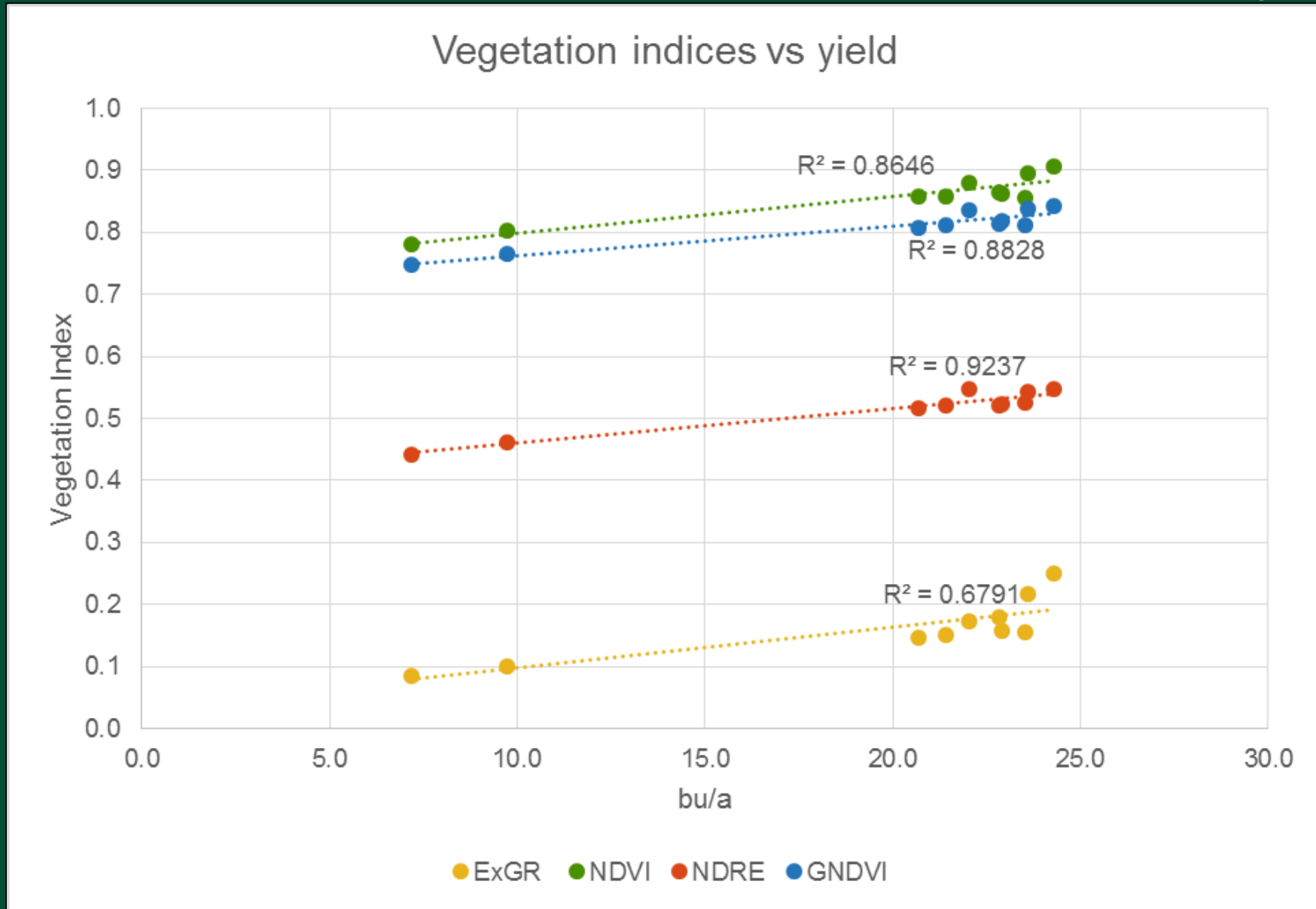


# Sequential Exposures - final

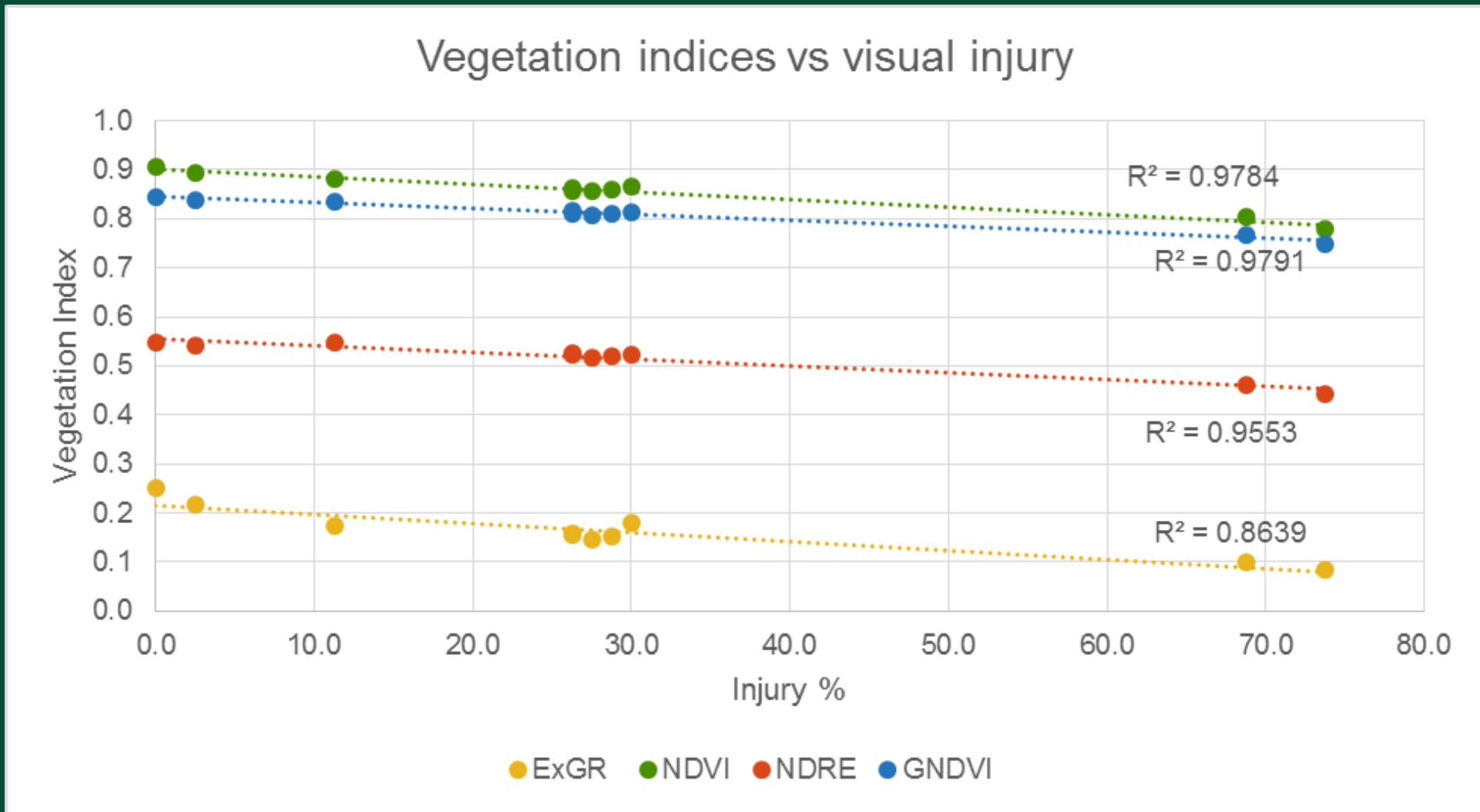
Treatment	Germination	Vigor	Dicamba
0.14 oz dicamba	%	1-5	ppb in leaf
Check	88.5	3.0	5.5
R1	88.5	3.4	15.9
R1 + R2	87.3	3.3	65.1
R1 + R2 + R3	88.3	1.8	25.8
LSD (0.05)	NS	1.6	29.1



# Can UAVs detect dicamba injury

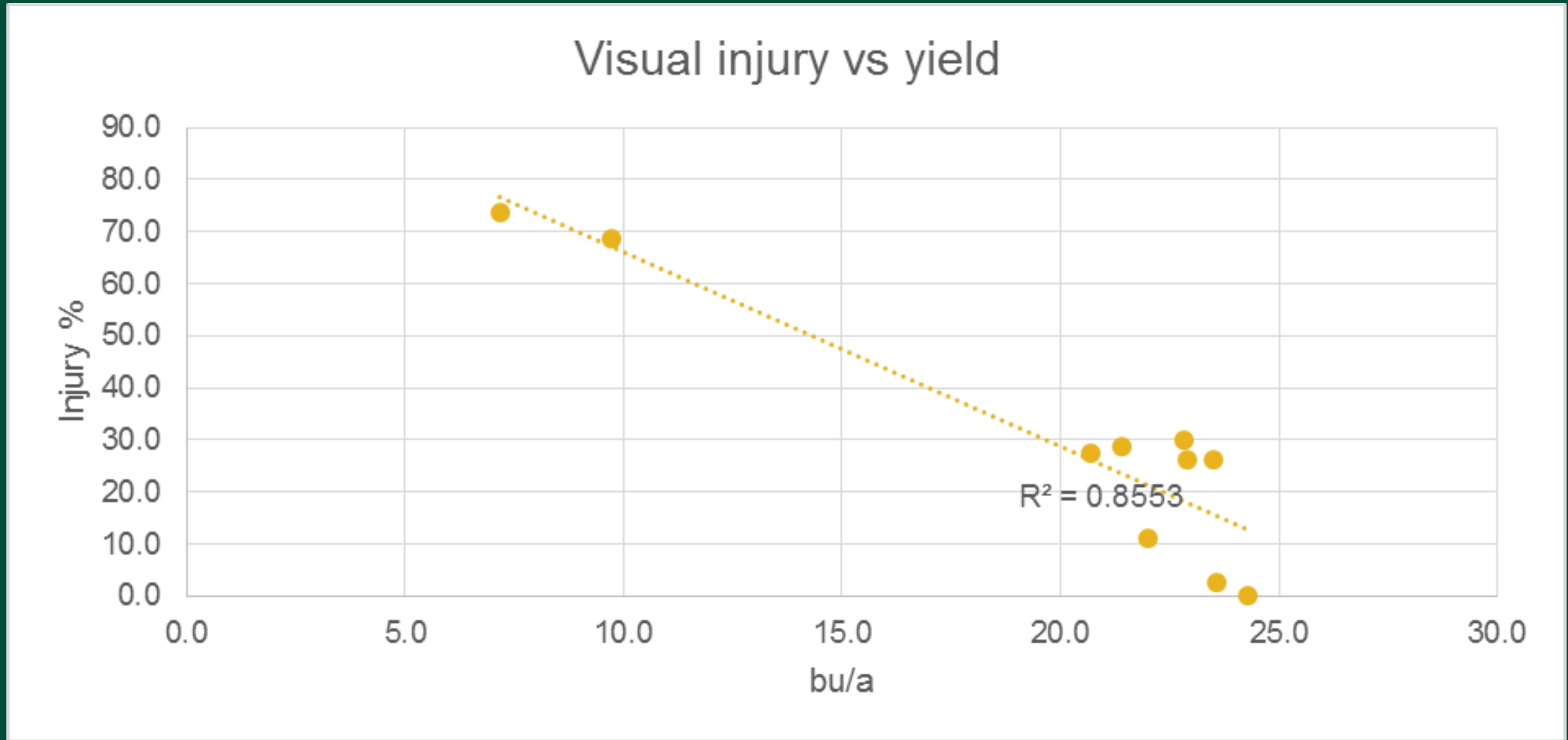


# Can UAVs detect dicamba injury





# Relationship between visual injury and yield



# UAV summary

- Excess Green can be collected with a standard camera
  - I.E. Phantom 4 drone
  - Higher resolution, lower cost
  - Compared to specialized sensors it was the least predictive, but still had very reasonable results
- Overall, vegetation indexes were very predictive of a yield response and to determine the area affected, but ground-truthing is required



# RoundUp + Liberty in Soybean

Herbicide	Rate	Adjuvant	Y. Foxtail	Co. Lambqtrs	Redroot Pigweed
	oz/a		14 DAT	14 DAT	14 DAT
Check			0.0	0.0	0.0
Liberty	32	AMS	41.7	81.7	86.7
RoundUp Powermax	28	Class Act NG	63.3	81.7	93.3
Liberty + R. Powermax	32 + 28	Class Act NG	56.7	71.7	85.0
Liberty + R. Powermax	43 + 21	Class Act NG	68.3	88.3	88.3
Liberty + R. Powermax	32 + 21	Class Act NG	56.7	80.0	90.0
Liberty + R. Powermax	32 + 21	Class Act Rideon	61.7	78.3	93.3
Liberty + R. Powermax	32 + 21	AMS	68.3	88.3	90.0
LSD (0.05)			8.3	7.9	4.6



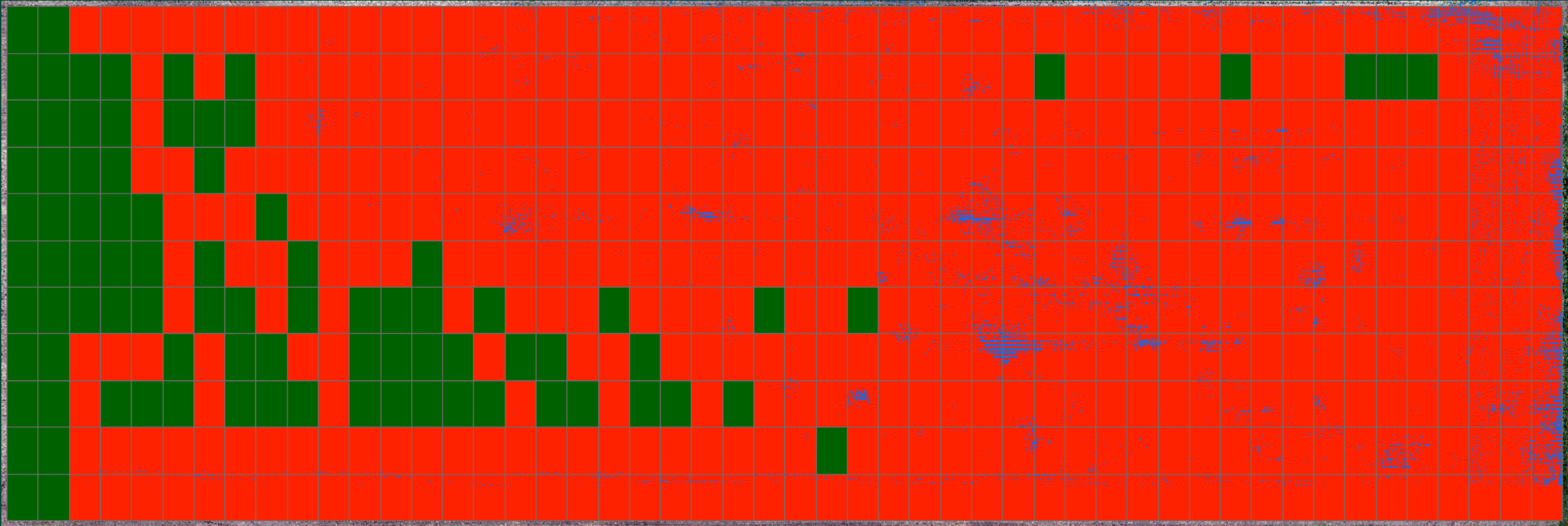
# Site-specific weed management in corn



Weeds on 06/08/2018 – used to create spraying map



# Creating management zones

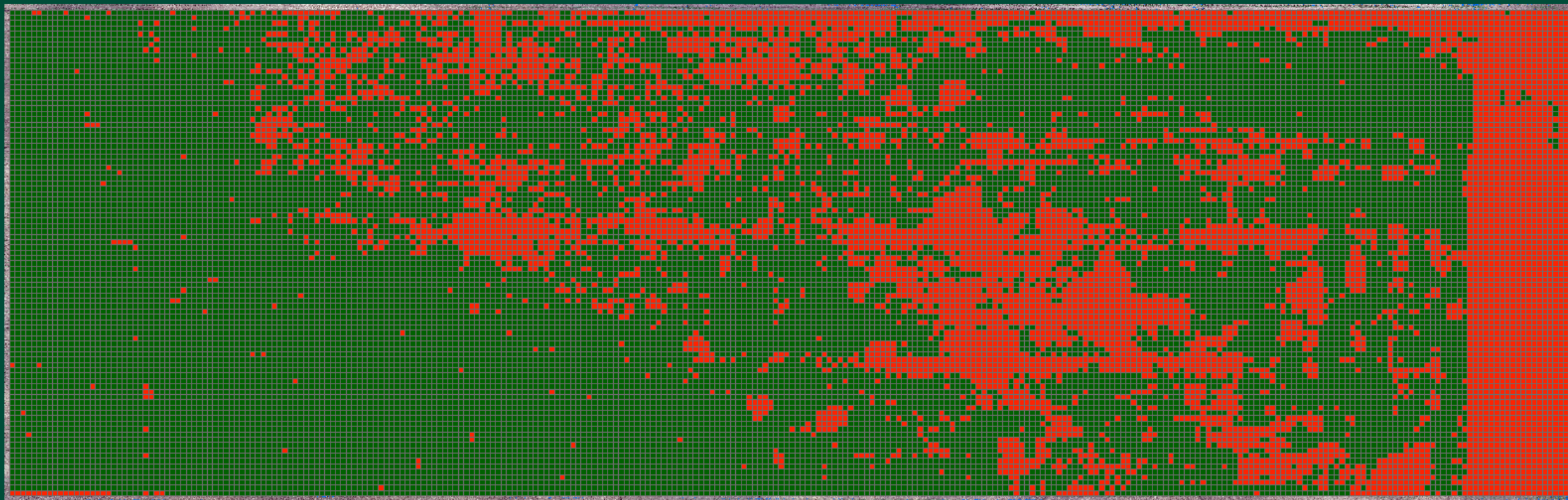


Study map resolution – 20ft x 30ft cell size

Spray

YES= 84%
NO= 16%

# Higher Resolution



Study map resolution – 3.28 x 3.28 ft cell size

Spray

YES= 30%  
NO= 70%



# 2019 Rye Update

- Focus on Moisture
- Determine why some are not controlling rye with glyphosate
- Create resources







Questions?