

Precision Ag Update



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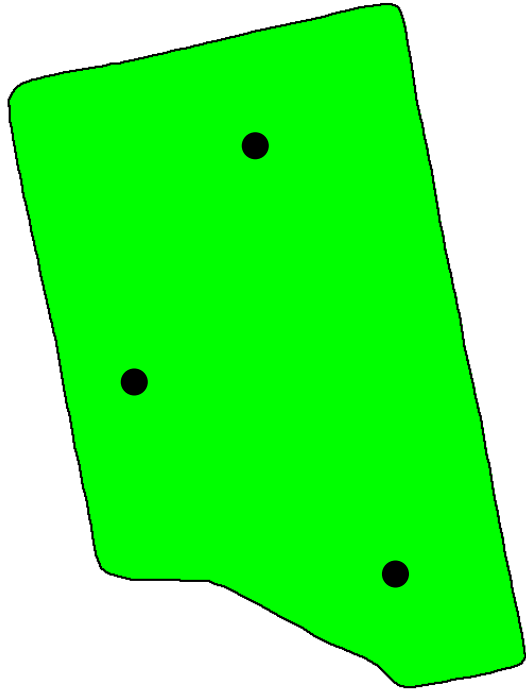


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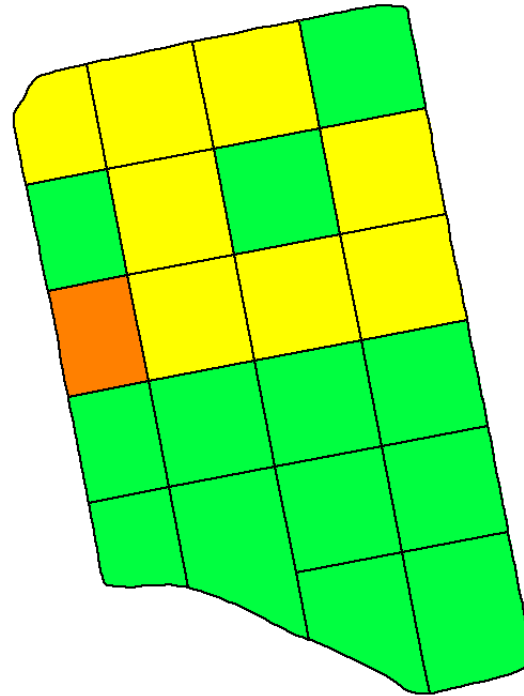


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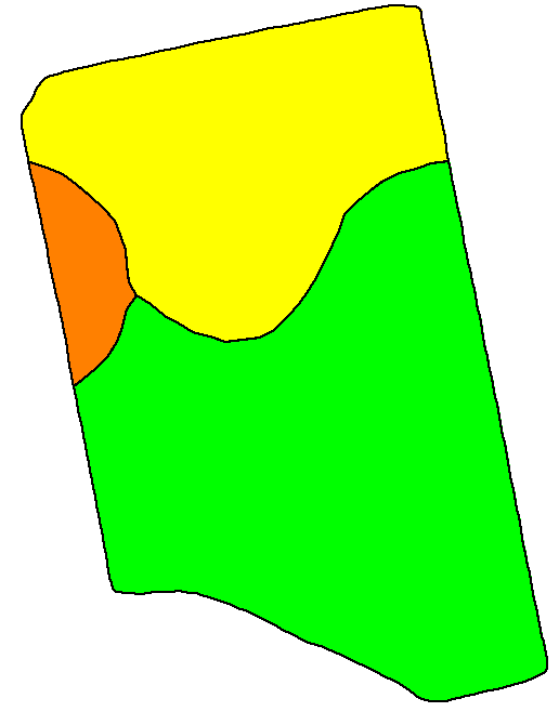
Precision Soil Sampling and Variable-Rate Fertilization



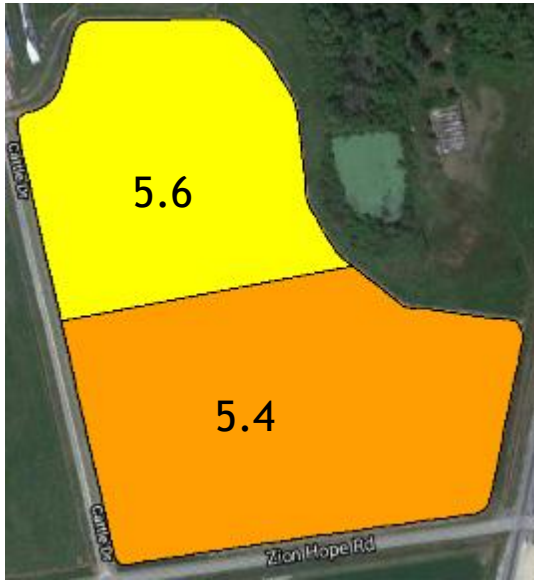
Traditional Soil Sampling
(1-2 composite sample)



Grid Soil Sampling
(2.5 or 5 ac grids)



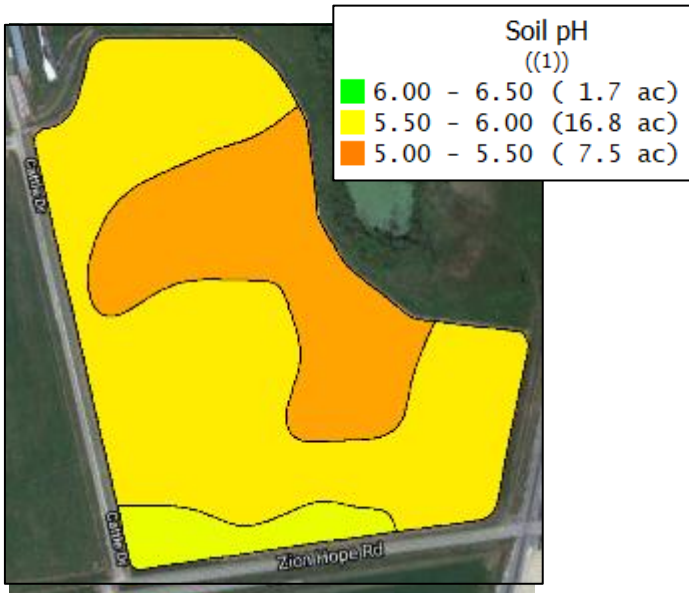
Zone Soil Sampling
(e.g. soil type, yield, etc.)



Uniform Application

Field	Size (acres)	Rate (lbs/ac)	Total Lime (lbs)	Total Cost (\$)
Zone 1	26.0	2000	52,000	\$494
Total			26 ton	\$494

\$227 - \$9/acre



Variable-Rate Application

Field	Size (acres)	Rate (lbs/ac)	Total Lime (lbs)	Total Cost (\$)
Zone 1	7.5	1500	11,250	\$107
Zone 2	16.8	1000	16,800	\$160
Zone 3	1.7	0	0	\$0
Total			14 ton	\$267



30 - 0 - 110 lbs/ac

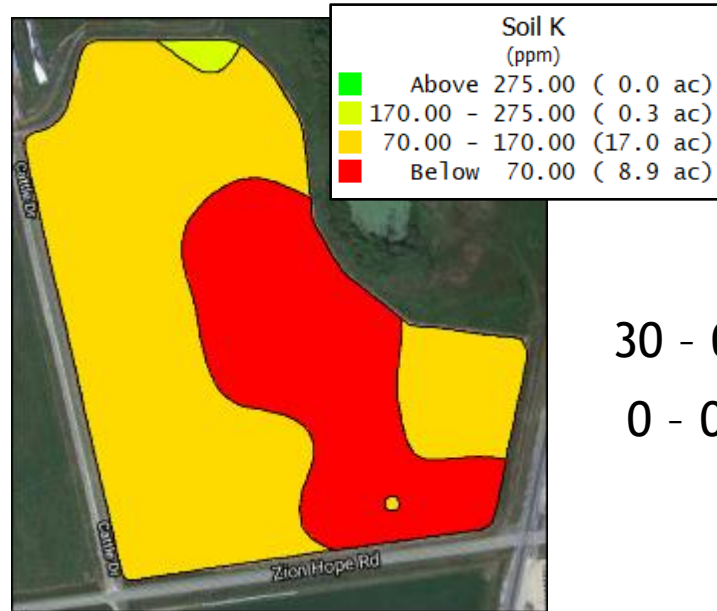
Uniform Application

Field	Size (acres)	Cost (\$/ac)	Total Cost (\$)
Field	26.0	124	3,224

Total

\$3,224

\$658 - \$25/acre



30 - 0 - 70 lbs/ac

0 - 0 - 40 lbs/ac

Variable-Rate Application

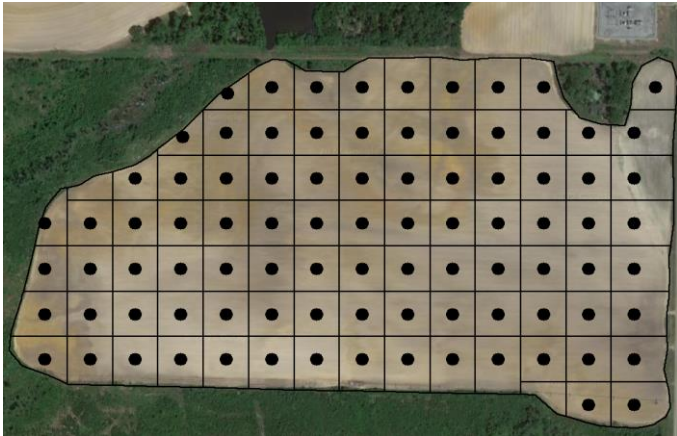
Field	Size (acres)	Cost (\$/ac)	Total Cost (\$)
Field	26.0	89	2,314
Zone 2	9.0	28	252

Total

\$2,566

Optimal Grid Size for Soil Sampling?

(2022 - Tift, Worth, Colquitt, Terrell, Jefferson)



1.0 ac



2.5 ac



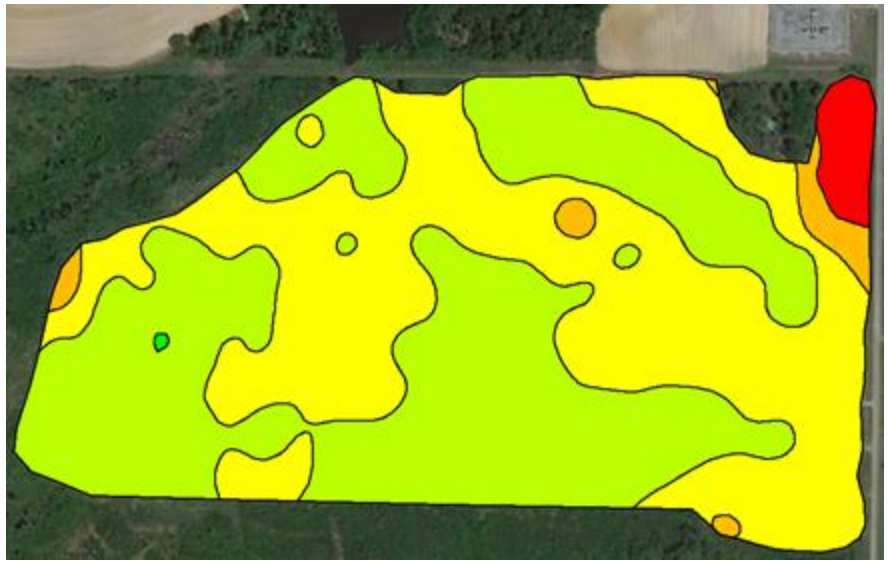
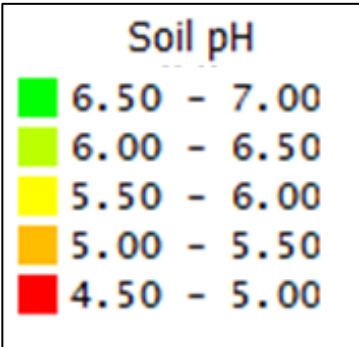
5.0 ac



7.5 ac



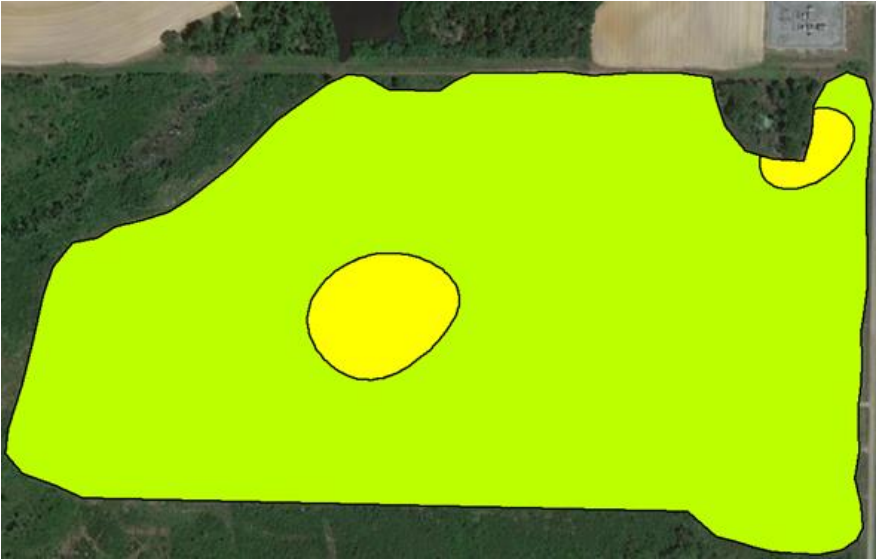
10.0 ac



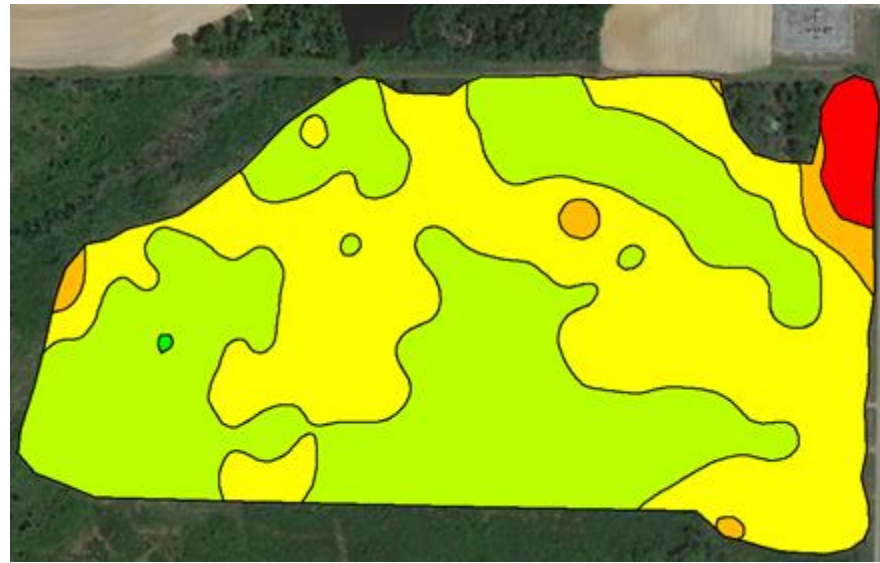
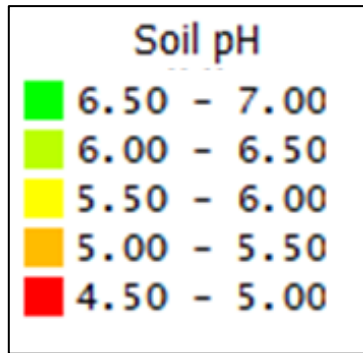
1 ac
(92 samples)



2.5 ac
(35 samples)



5 ac
(17 samples)



7.5 ac
(13 samples)



10 ac
(8 samples)



Application Accuracy (%)

Grid Size	F1	F2	F3	F4	F5	F6	F7	F8	F9
1.0	87	89	95	90	95	75	91	90	91
2.5	66	85	92	78	93	82	41	70	13
5.0	51	75	75	81	87	80	68	65	77
7.5	46	66	94	11	92	75	41	70	81
10.0	45	34	65	54	30	75	41	48	76

Grid Size – Effectiveness vs Cost

Application Costs (\$/ac)

Grid Size	F1	F2	F3	F4	F5	F6	F7	F8	F9
1.0	43	20	34	33	34	43	40	38	56
2.5	35	14	28	27	30	41	31	33	64
5.0	31	15	23	26	32	41	35	36	55
7.5	33	20	30	5	30	42	30	31	51
10.0	41	17	22	18	39	42	30	22	55

Field 1

Lime

Grid Size	Accuracy (%)	Cost (\$/ac)
1.0	89	20
2.5	85	14
5.0	75	15
7.5	66	20
10.0	34	17

P

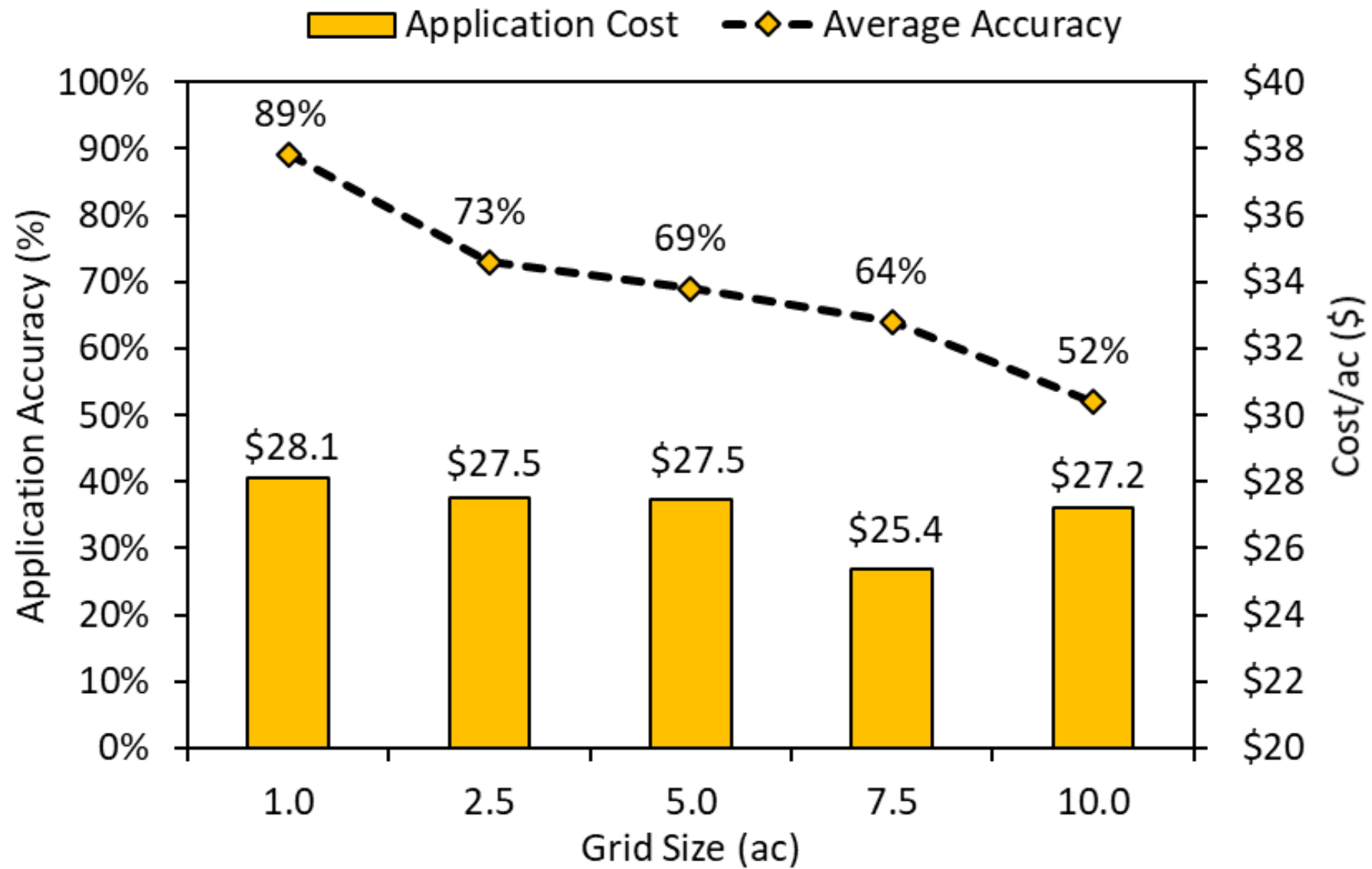
Grid Size	Accuracy (%)	Cost (\$/ac)
1.0	92	16
2.5	82	15
5.0	70	13
7.5	74	14
10.0	77	10

K

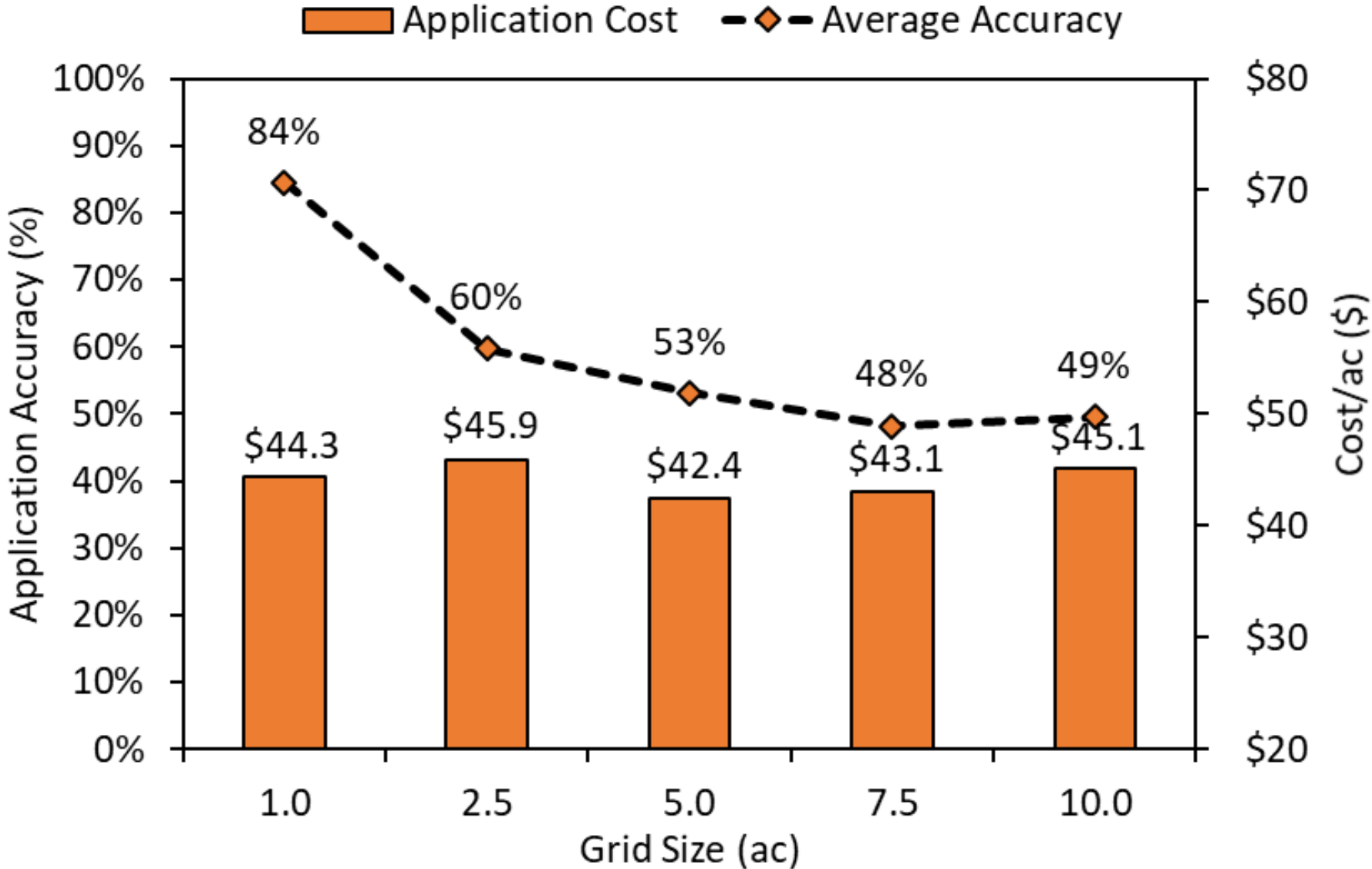
Grid Size	Accuracy (%)	Cost (\$/ac)
1.0	88	89
2.5	72	85
5.0	66	82
7.5	49	86
10.0	44	86

(Soil sampling = \$4/ac, Sample analysis = \$6/sample)
Lime = \$50/ton, P = \$0.67/lb, K = \$0.68/lb)

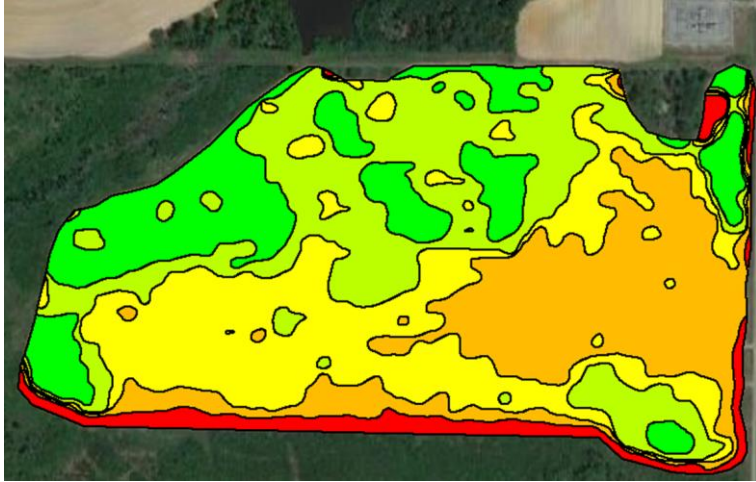
Lime



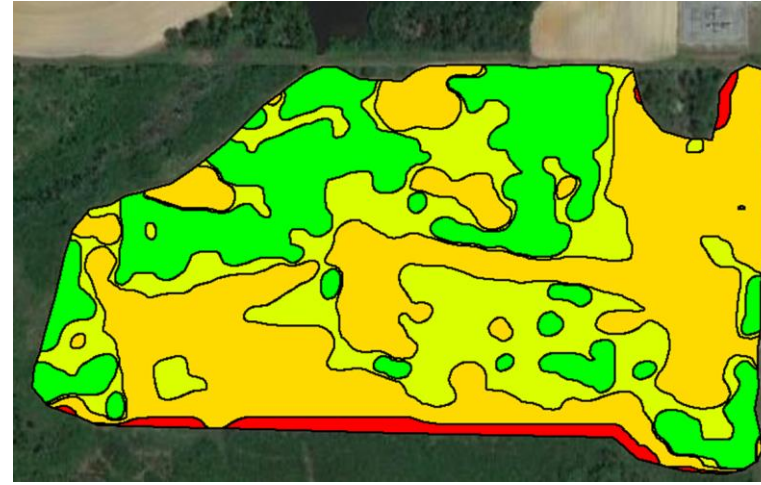
Potassium



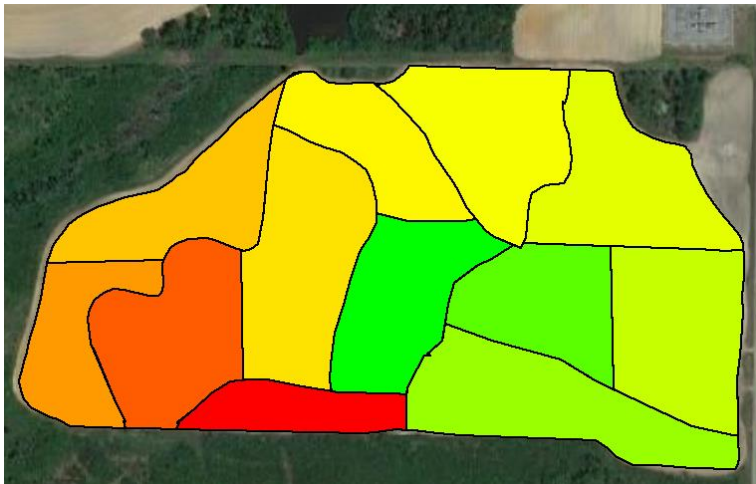
What about Zone Sampling?



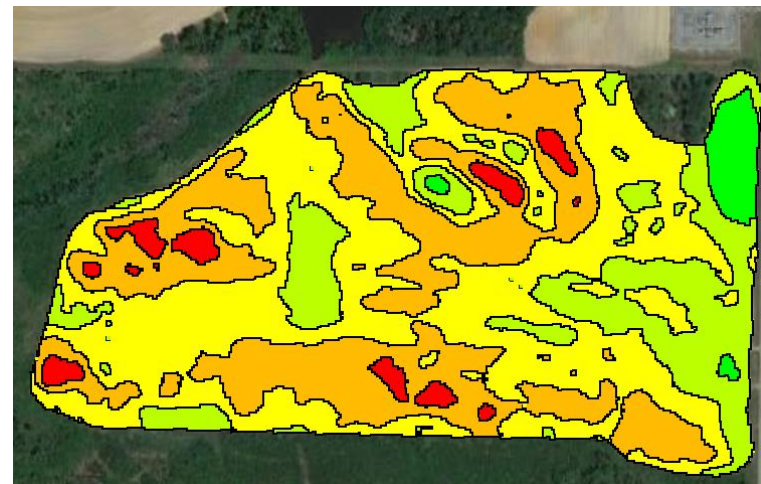
Soil Color/Brightness (5 samples)



Soil EC (4 samples)

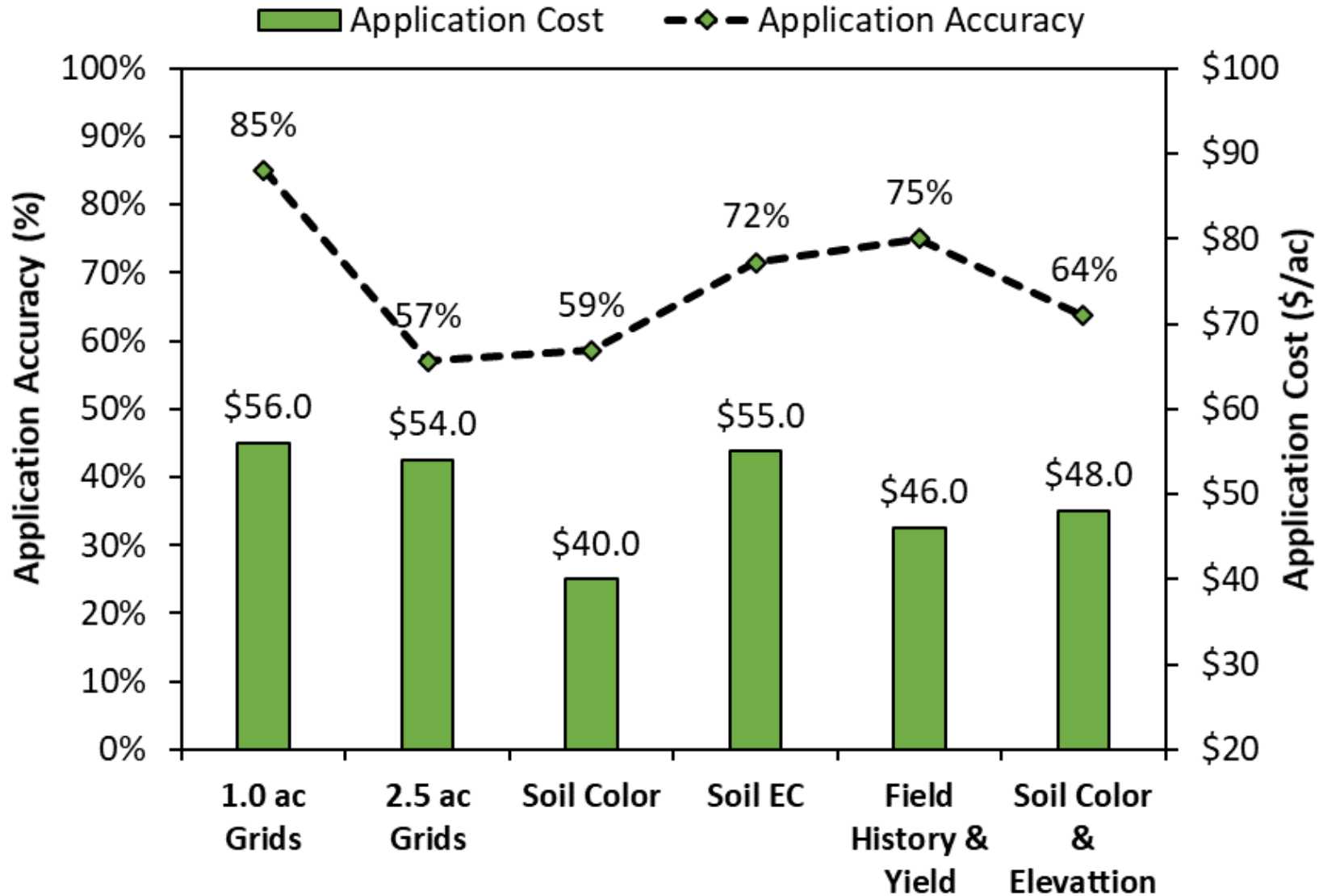


Field Knowledge and Yield (12 samples)



Soil Color and Elevation (5 samples)

What about Zone Sampling?



Thanks!

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