

Incorporating Bioenergy in Sustainable Landscape Designs

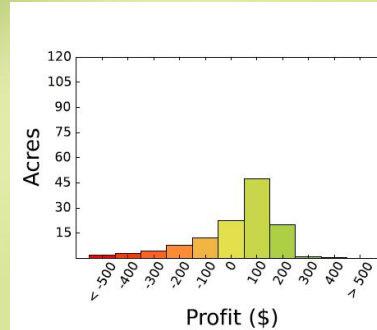
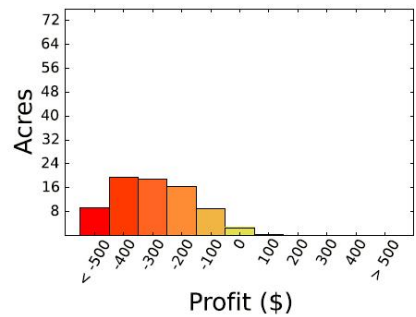
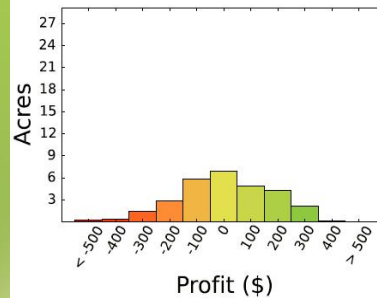
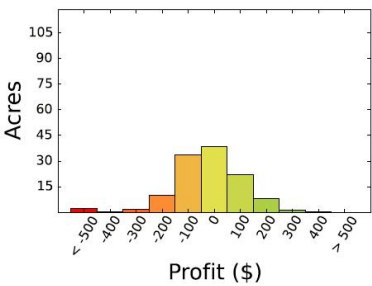
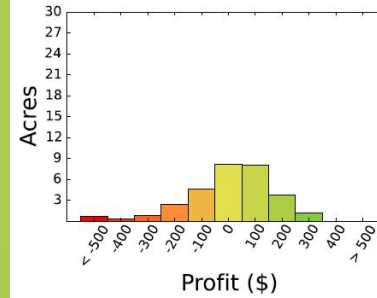
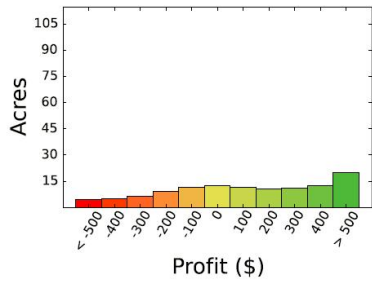
Bridging scales and tools in the field, watershed, county, and region

AgSolver, Inc
June 25th, 2014

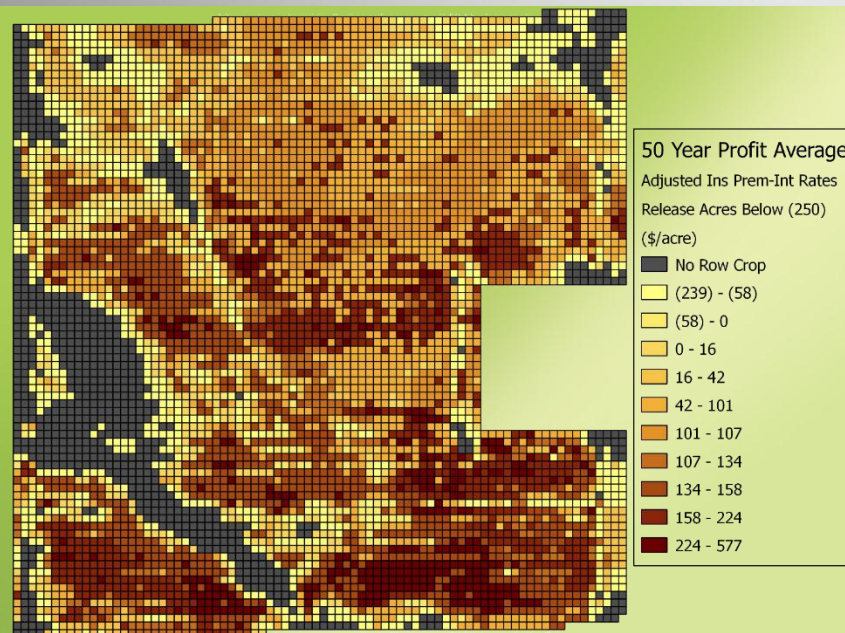
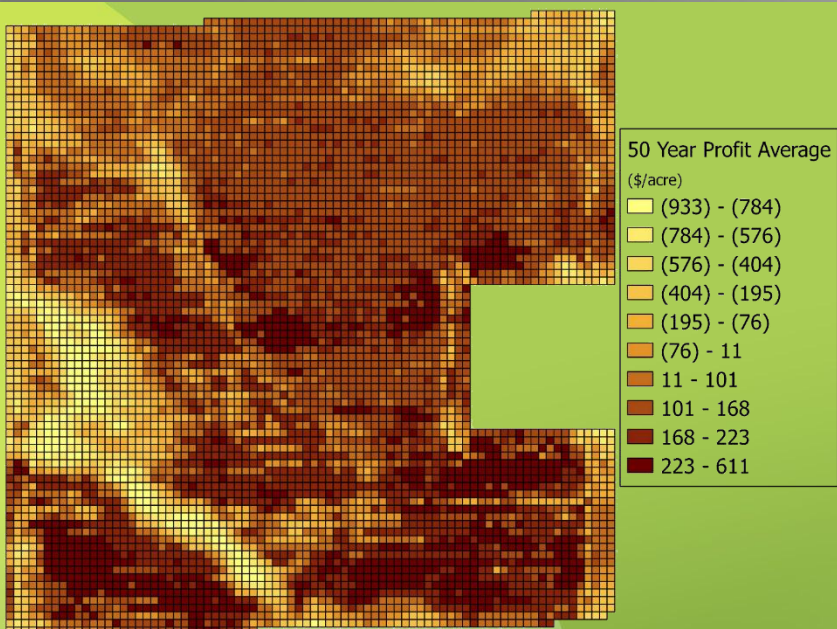
Identifying the Opportunities: Profitability



Profit (\$/ac)



Identifying the Opportunities: Profitability



Summary

50 Year Yld Ave:	170	bu/acre
50 Year Yld STD:	38	bu/acre
Profit Average:	\$47	\$/acre
Profit STD:	\$235	\$/acre

Summary

Discontinue ops on areas with ave
loss > \$250/acre with risk adjusted
ins prem's and int rates

Profit Average:	\$76	\$/acre
Profit STD:	\$124	\$/acre

Identifying the Opportunities: Profitability

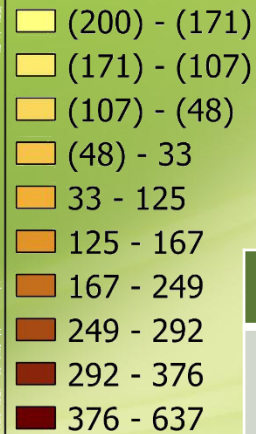


50 Year Profit Average

Adjusted Ins Prem - Int Rates

New Biomass at (200)

(\$/acre)

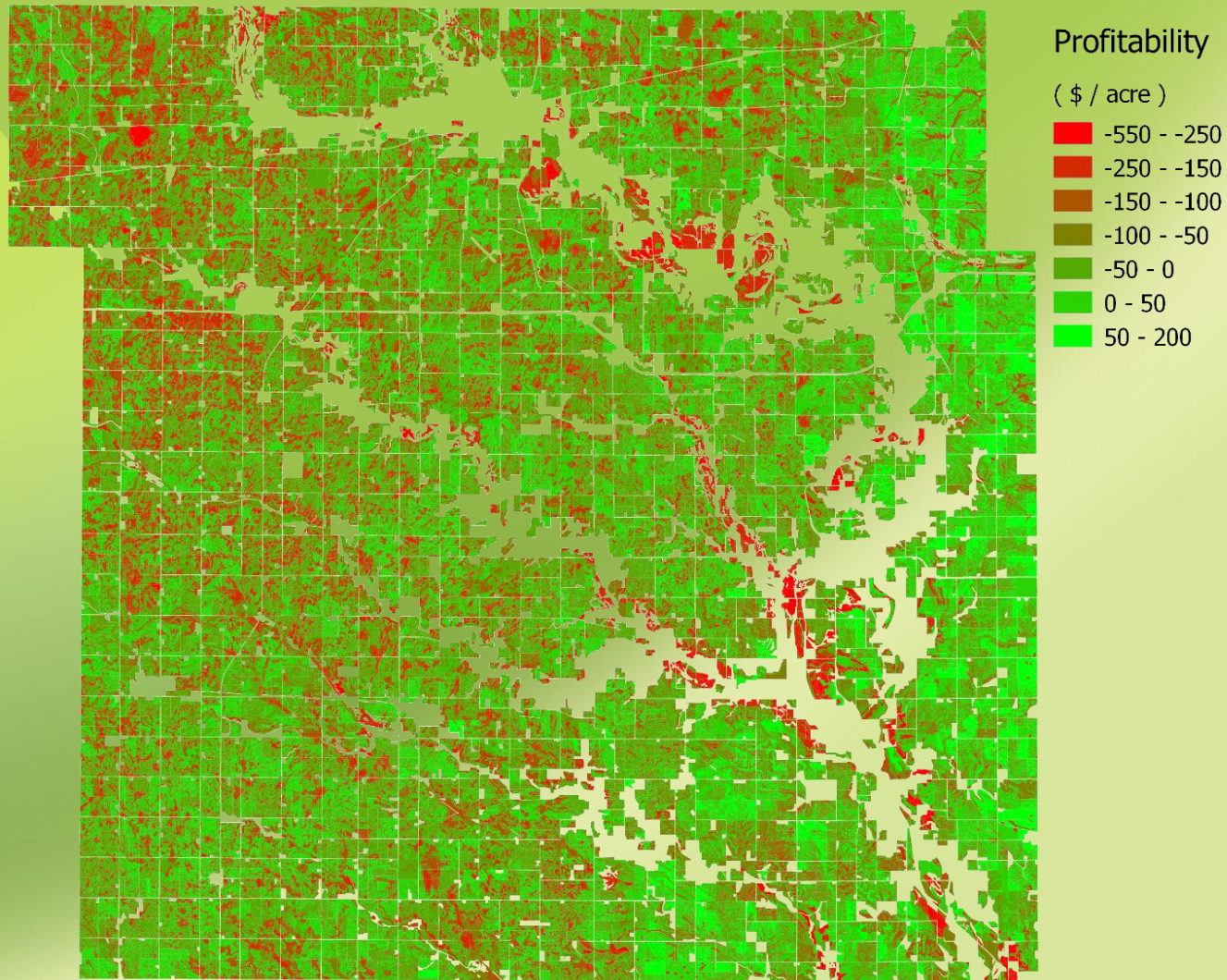


Summary

New production at loss >
\$200/acre with adjusted ins prem's
and int rates

Profit Average:	\$105	\$/acre
Profit STD:	\$149	\$/acre
Percentage of Field Profitable:	79%	

Identifying the Opportunities: Profitability



Connecting Environmental Performance: Solving the Mass Balance



Cons. Outputs

SCI
SCI-OM
SCI-FO
SCI-ER
Water Ero
Wind Ero

C Balance

c_rem_grn
c_rem_biomass
c_loss_ero
ann_soil_c_delta
co2_flux
c_delta



P Balance

p_rem_grn
p_rem_biomass
p_loss_ero
p_app

N Balance

n_rem_grn
n_rem_biomass
n_loss_ero
n_app
no3_leach
n2o_flux
n2_flux
nh3_vol

n_litter_in

n2_fix

crop_n_uptake

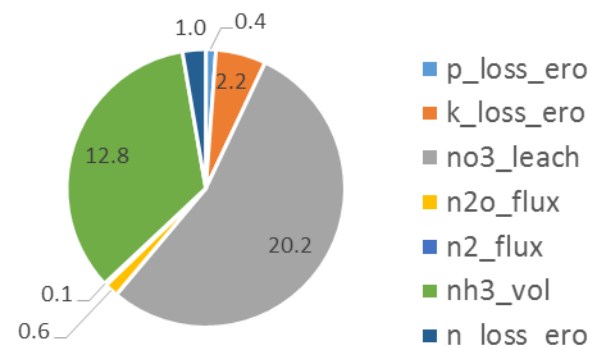
n_precip

n_delta

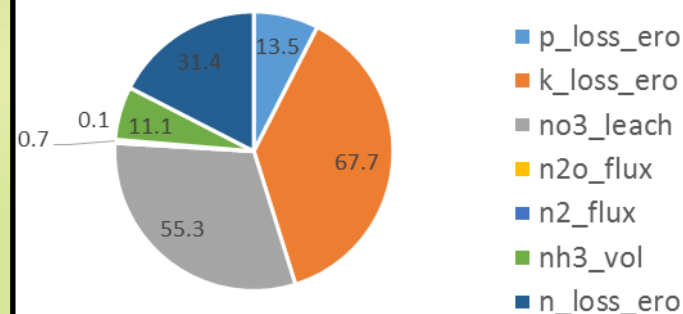
K Balance

k_rem_grn
k_rem_biomass
k_loss_ero
k_app

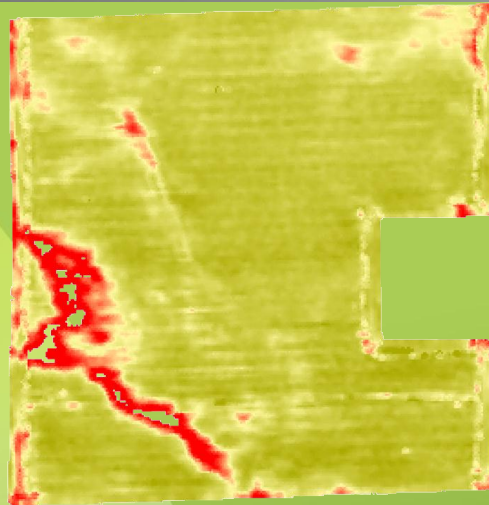
CG,CG,SB-NT-100rye-HRH



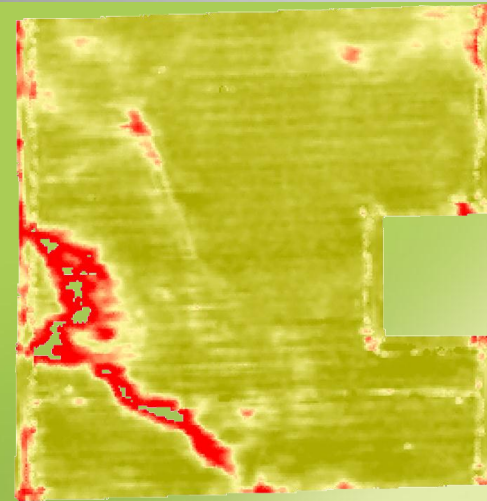
CG,CG,SB-RT-NCC-HRH



Field Scale Implementation

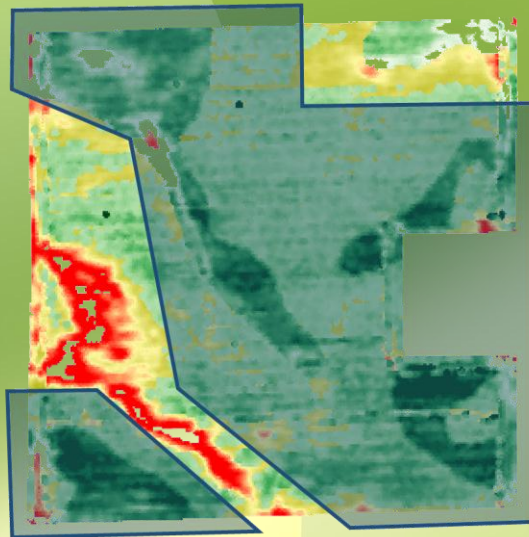


Profit: Corn Stover
no Cover Crop
(\$/acre)
\$(540)
\$(403)
\$(267)
\$(131)
\$5
\$142
\$278

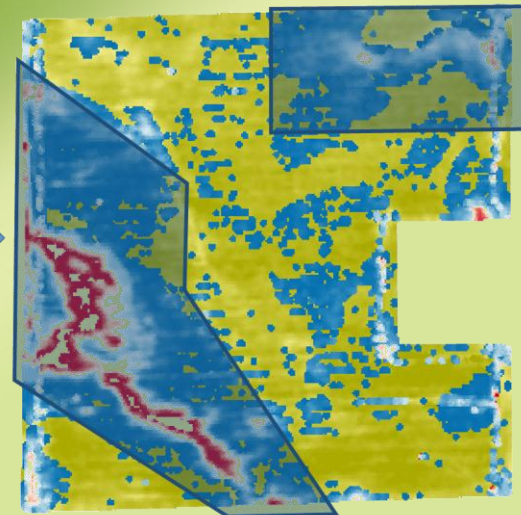


Profit: Corn Stover
with Cover Crop
(\$/acre)
\$(540)
\$(403)
\$(267)
\$(131)
\$5
\$142
\$278

Stover Removal Management Zones



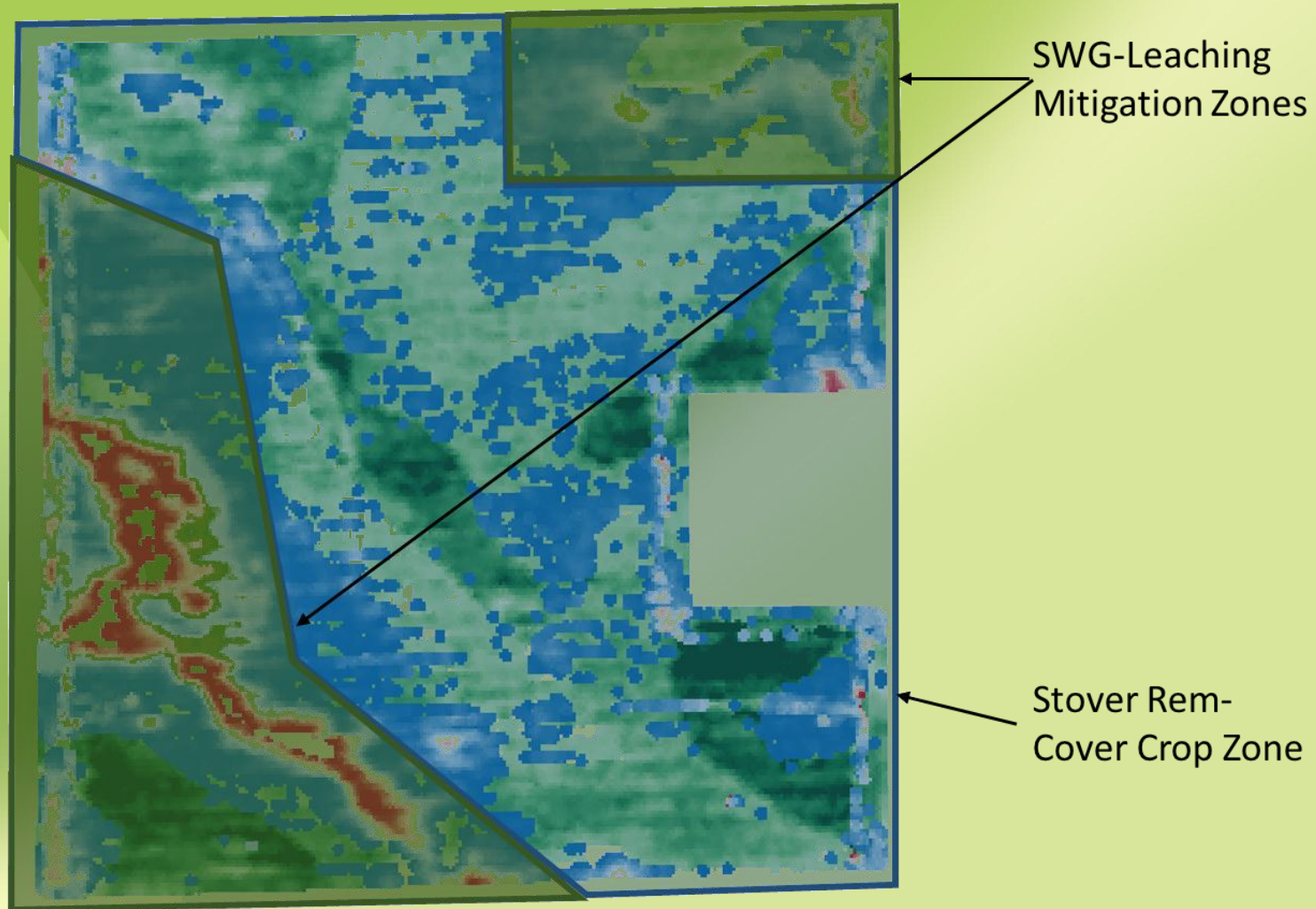
NO3 Leaching Mitigation Management Zones



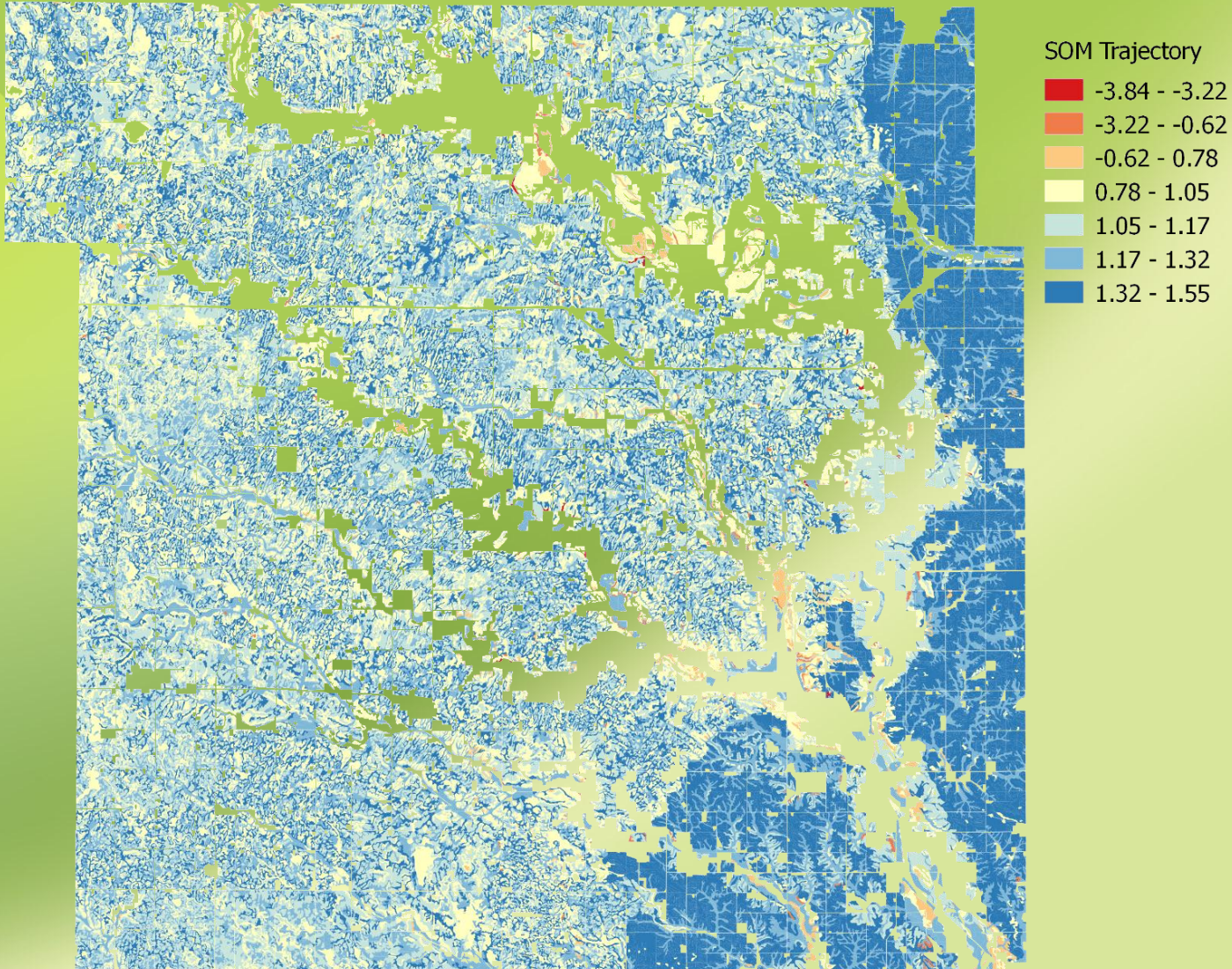
Field Scale Implementation



Operational Management Zones



Large Spatial Scale Implementation

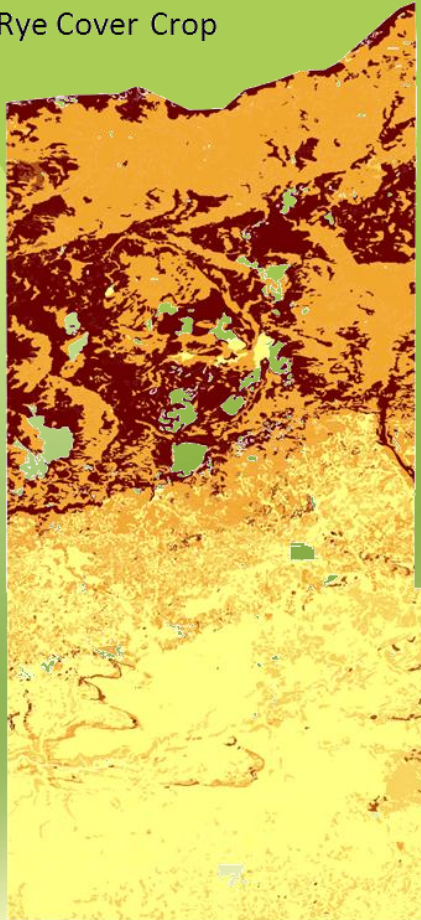


Large Spatial Scale Implementation

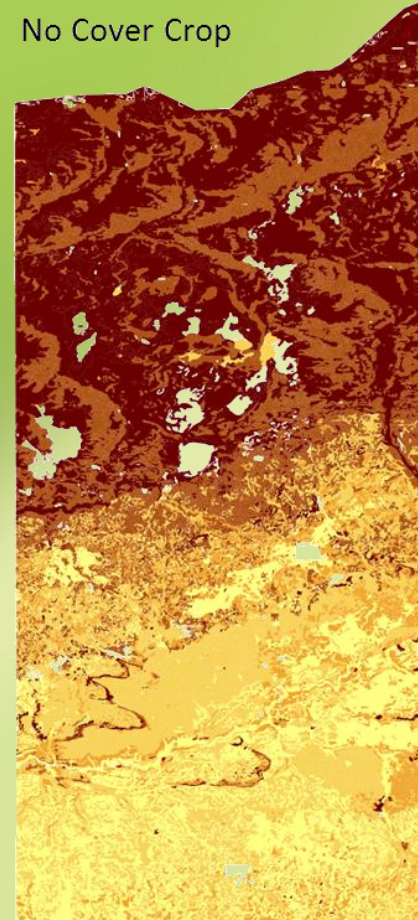


Newton County, IN ~50% Stover Removal

Rye Cover Crop



No Cover Crop



NO3 Leaching

lbs N/acre/year



Questions?