Phase 5.3.2 Univariate Analysis

Scale and Disproportionate Outcomes

April 22, 2015

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Univariate Analysis

- Initial condition - 1997 Calibration year no-action scenario – eliminate BMP effects included in previous Multivariate analysis (Tian 2013)
- Varied Fertilizer, Manure, Uptake, At Dep, Legume ±30% and ±60% from initial condition scenario
- CBP analyzed via regression analysis to determine global land use sensitivity coefficient by parameter
- Virginia analyzed for scale and disproportionate response issues by land use and parameter

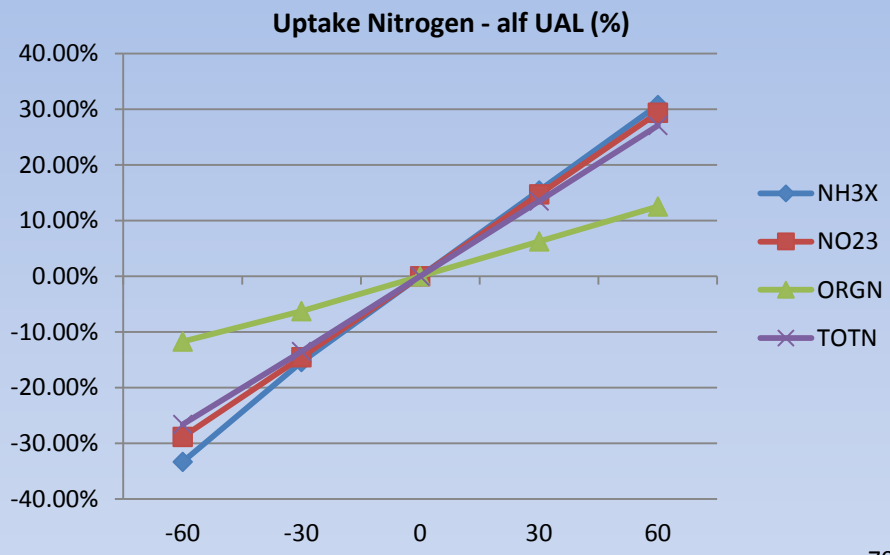
Issues Identified at Lseg Scale

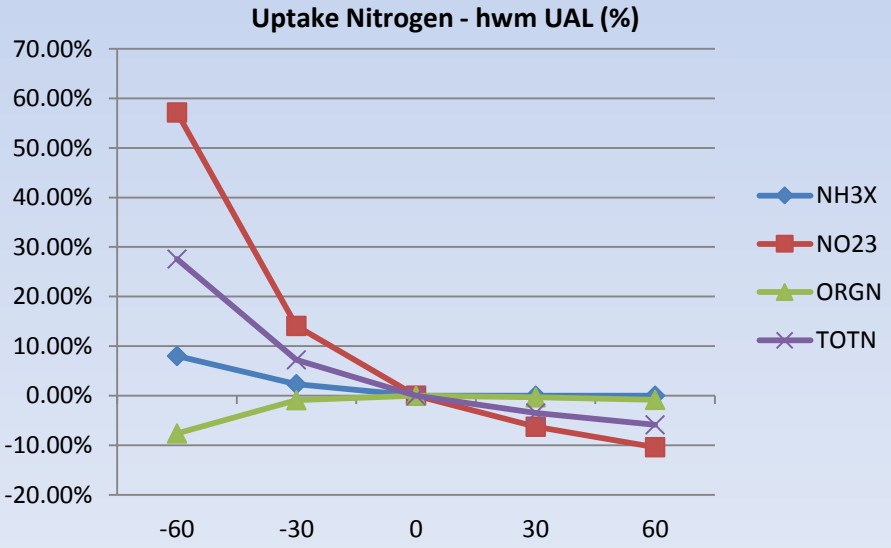
- Certain land uses and parameters have disproportionate outcomes compared to input variation
- NO23 for hyo with At Dep input variation
- NO23 and TOTN for hom, hwm with Fertilizer input variations
- NO23 and TOTN for hom with negative Uptake input variations
- ORGN for pasture with Manure input variation
- Uptake on Alfalfa slopes seem opposite of expected and other land uses

Scale Issues

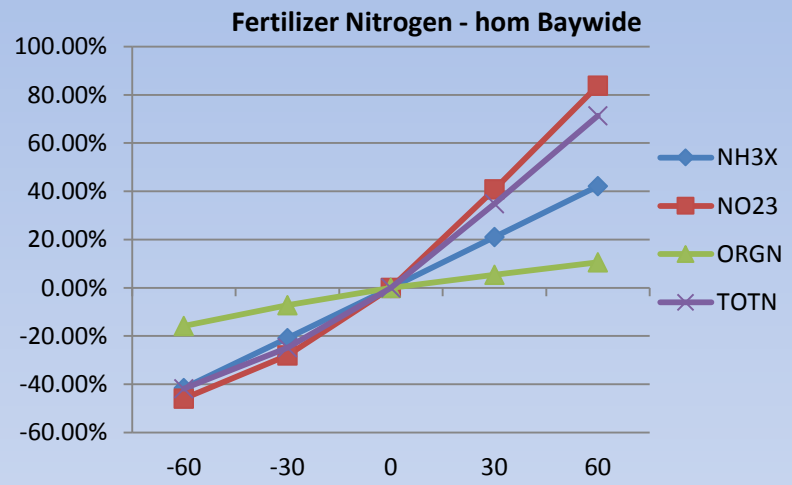
- Generally smaller input to output variation Baywide much more disproportional outputs at smaller scales (state, Cbseg, Rseg, Lseg)
- Wonder what is going on with NY and hi-till with manure (hwm)
- NY has 19 Lseg, 17 of them have disproportionate percentage output on hwm for NO23 and 13 for TOTN compared to input percentage variation

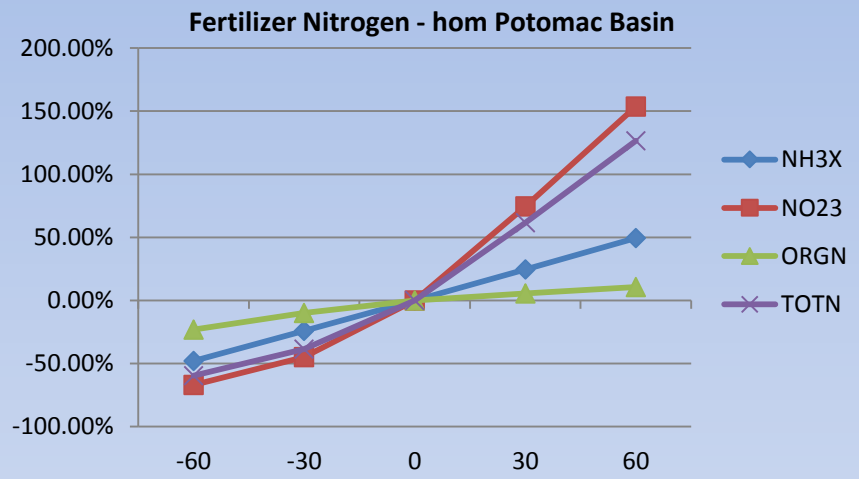
Uptake Alfalfa

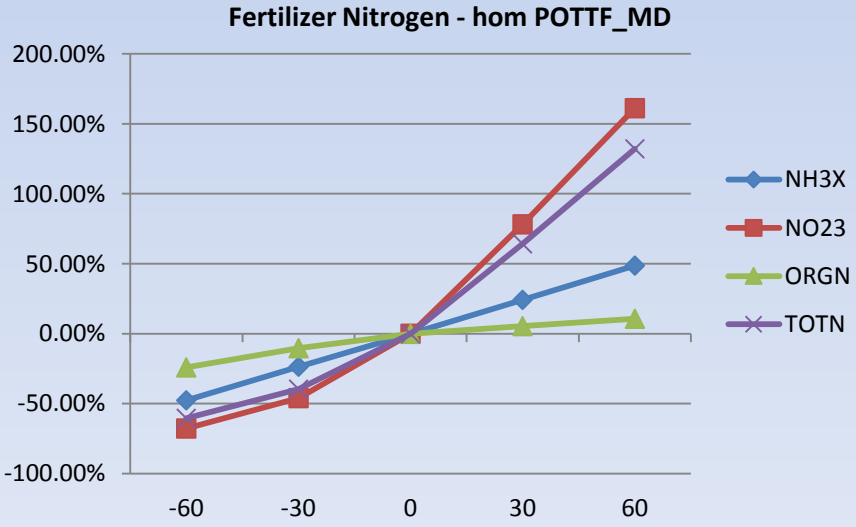


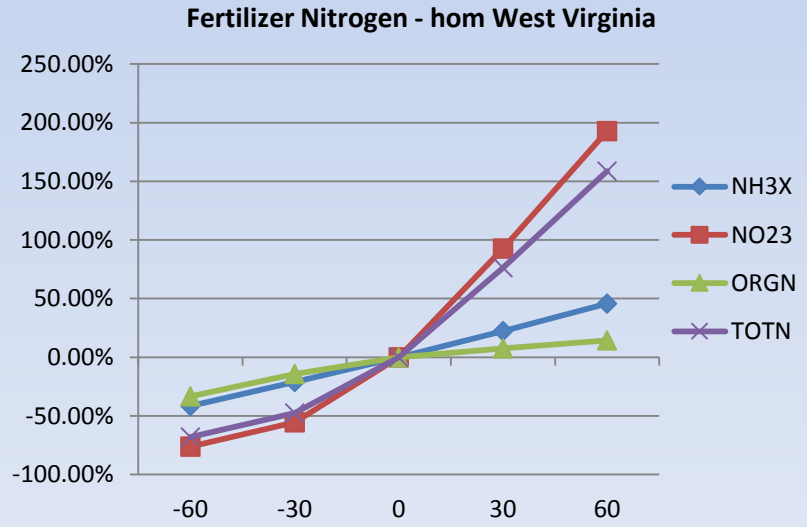


Hi-Till without Manure Scale Issues (hom)





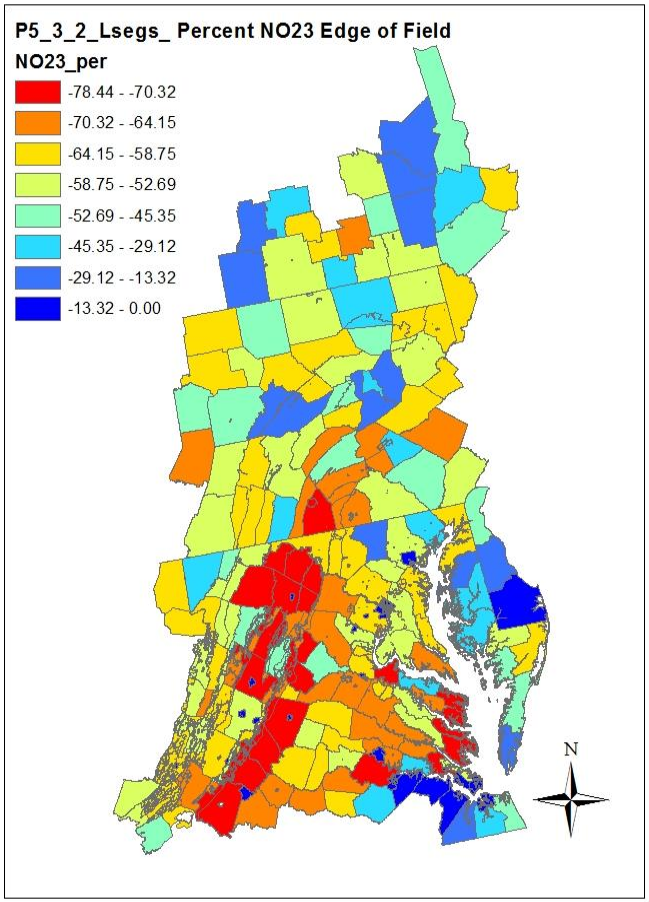




Hi-Till without Manure by Lseg

60% Decrease in Fertilizer Inputs - Outputs as a Percent

Fertilizer 60% Input Decrease - Hi-Till without Manure (hom)



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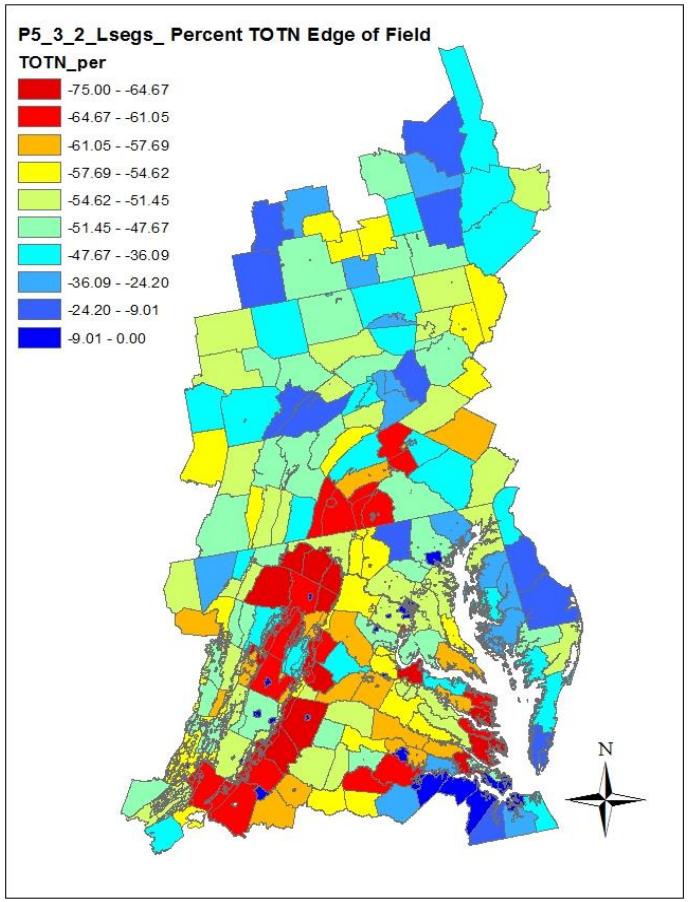

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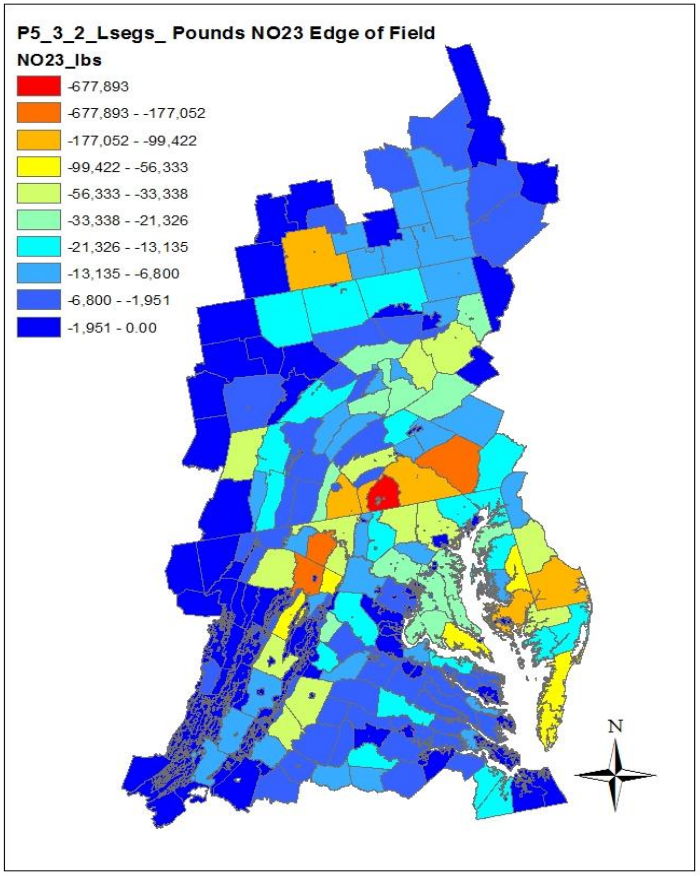

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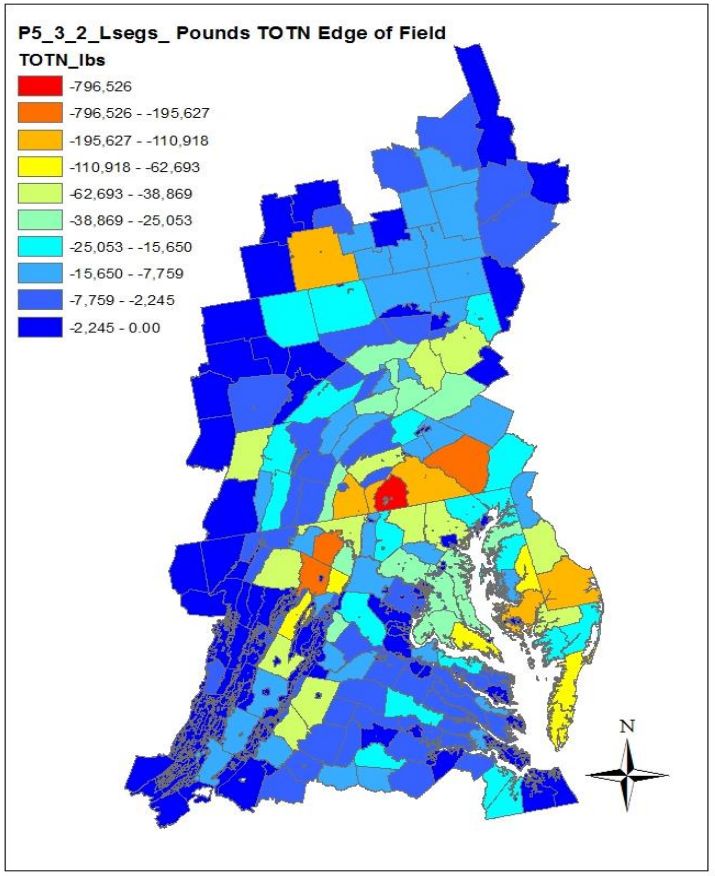

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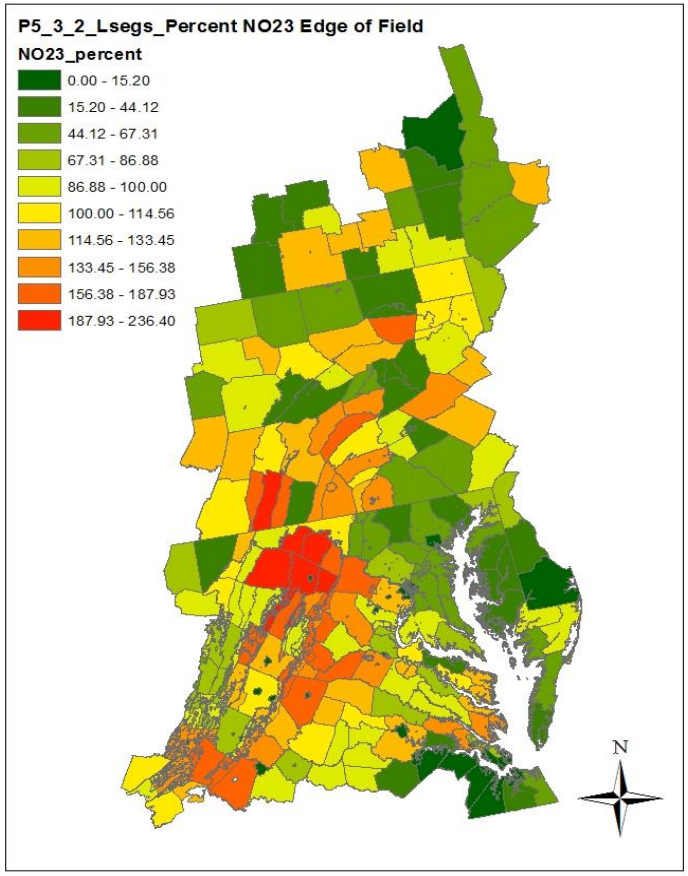

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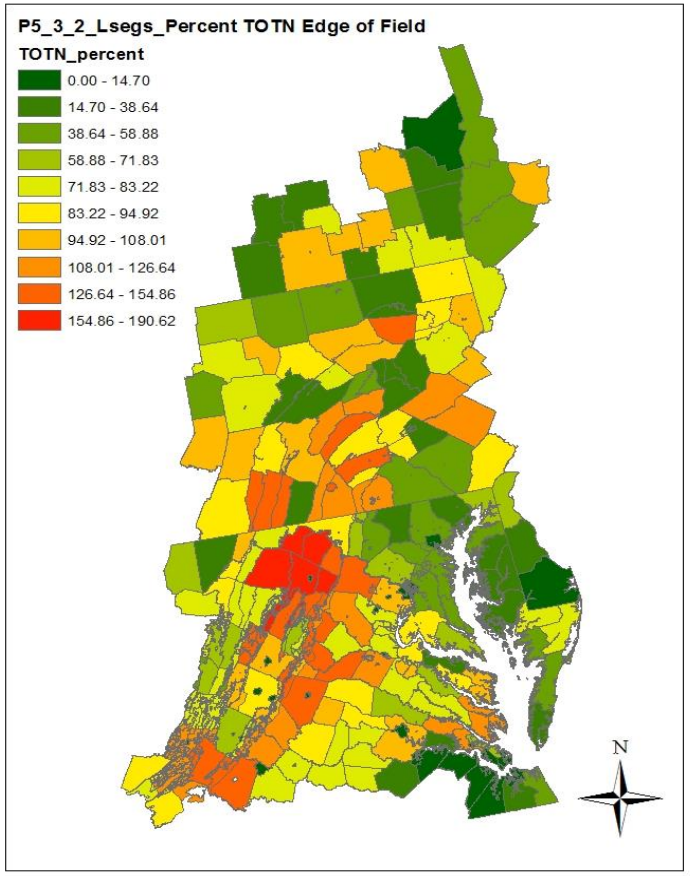

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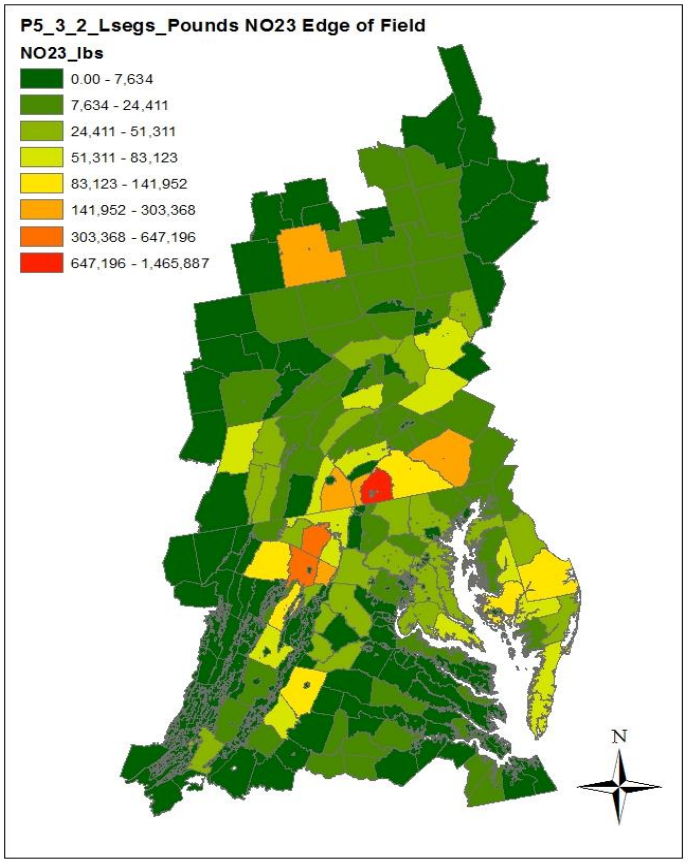

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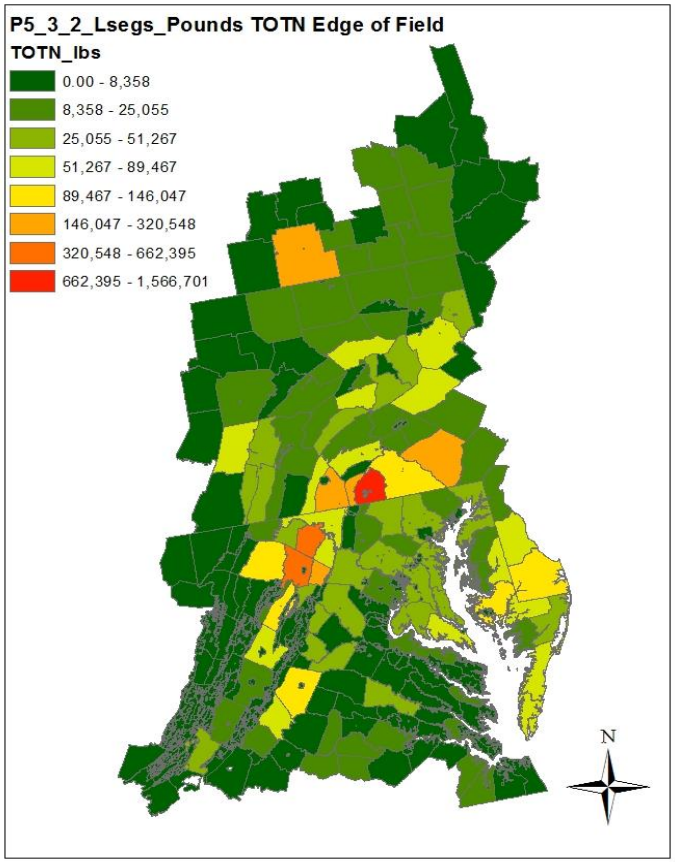
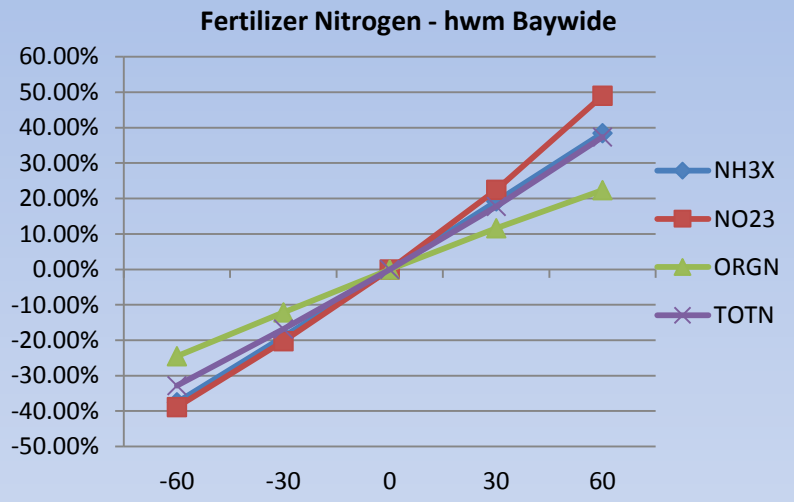
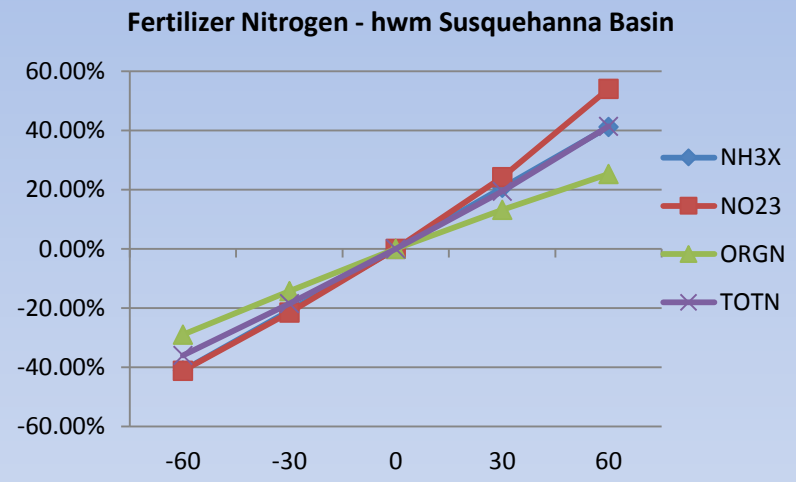
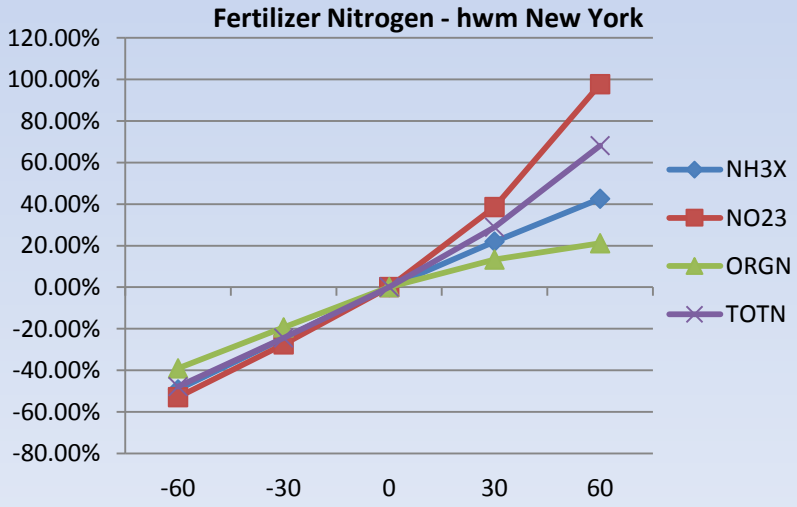
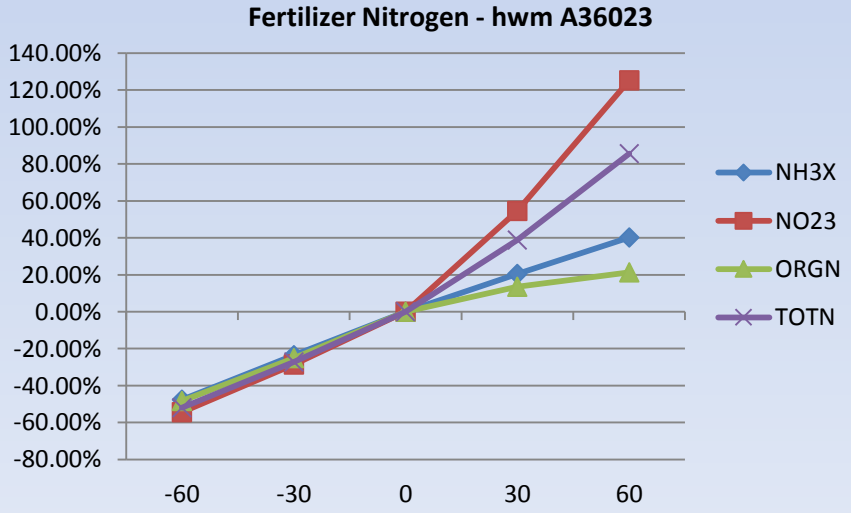


Hi-Till with Manure Scale Issues (hwm)









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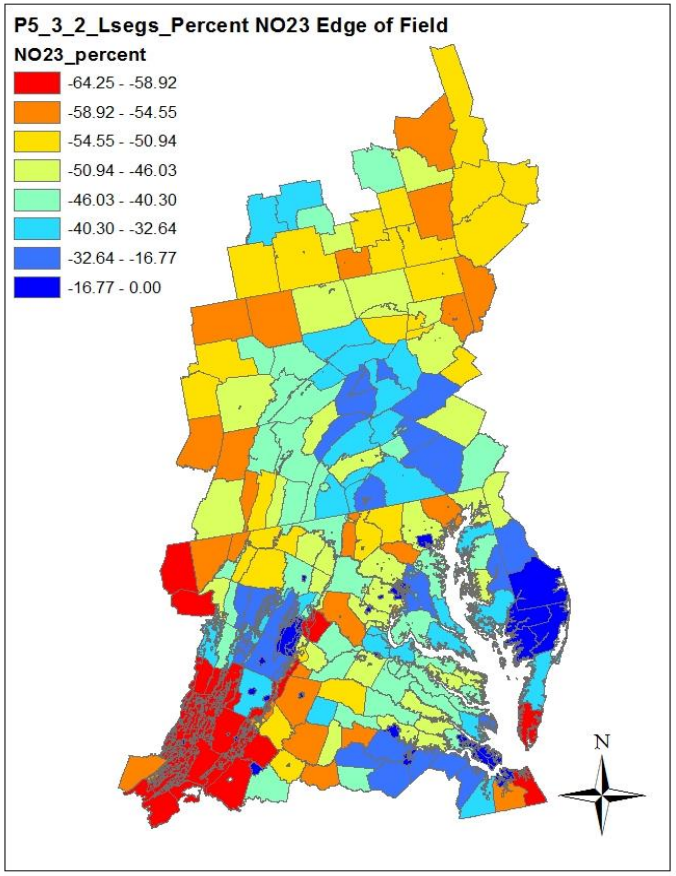

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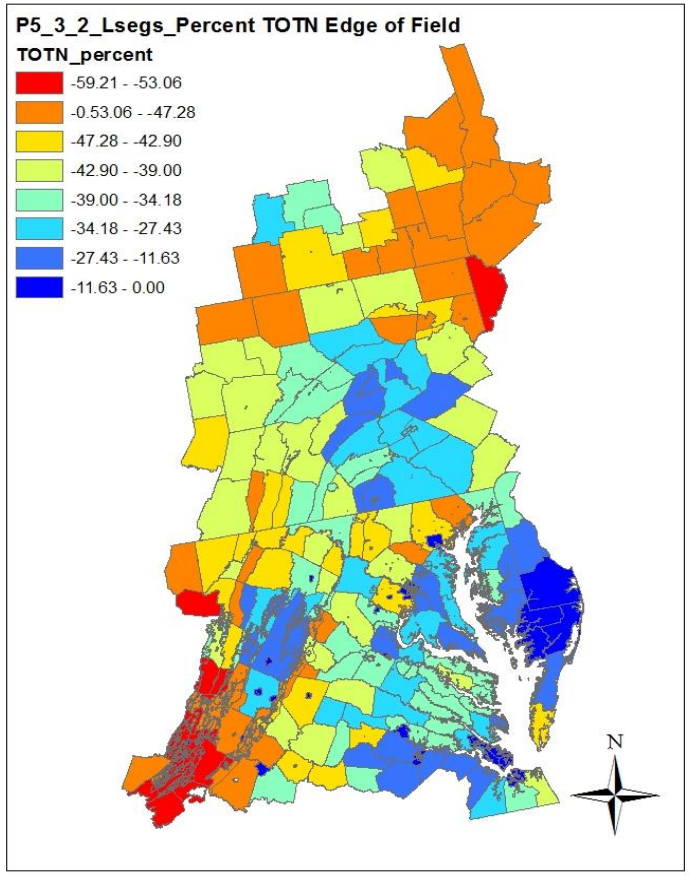

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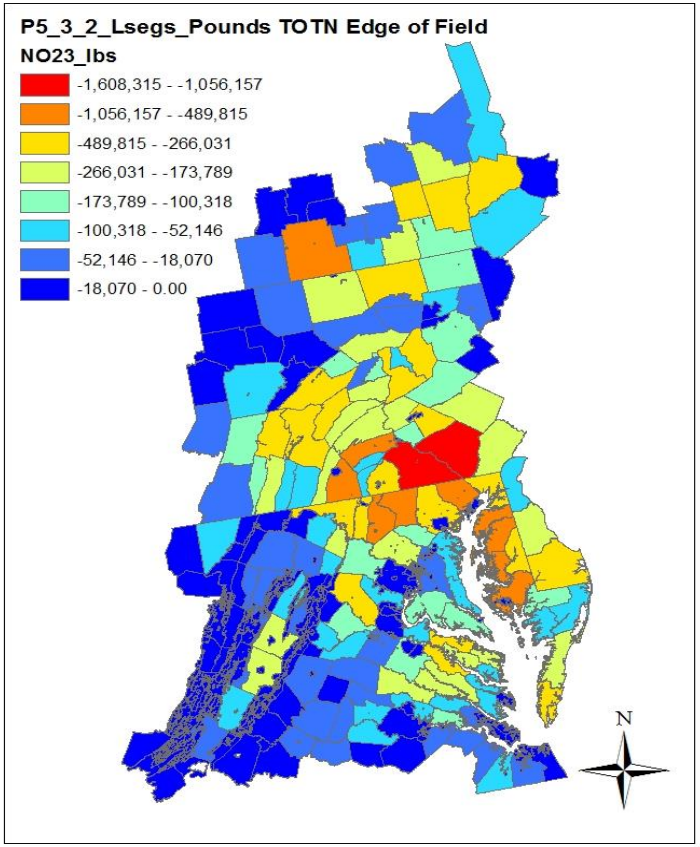

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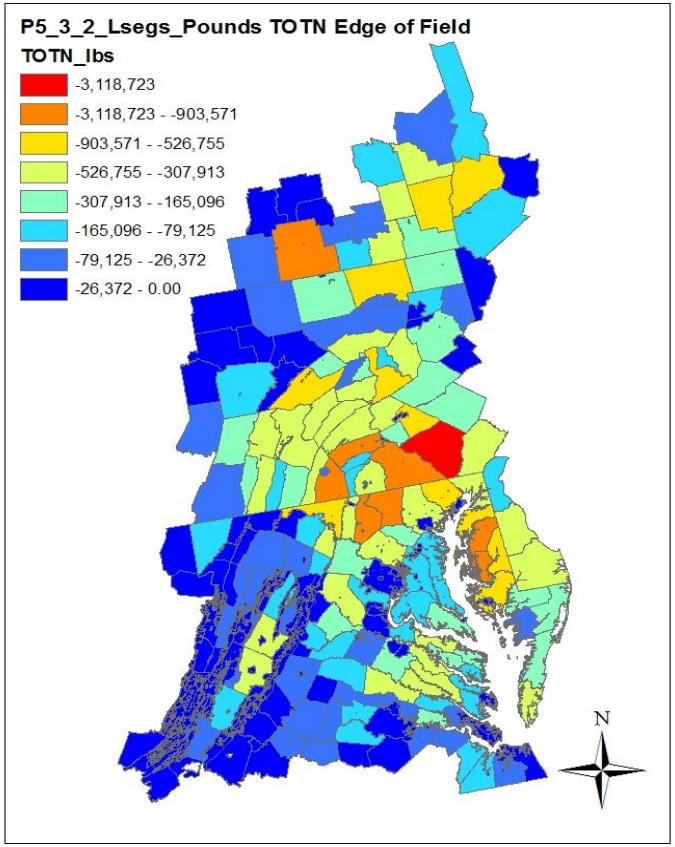

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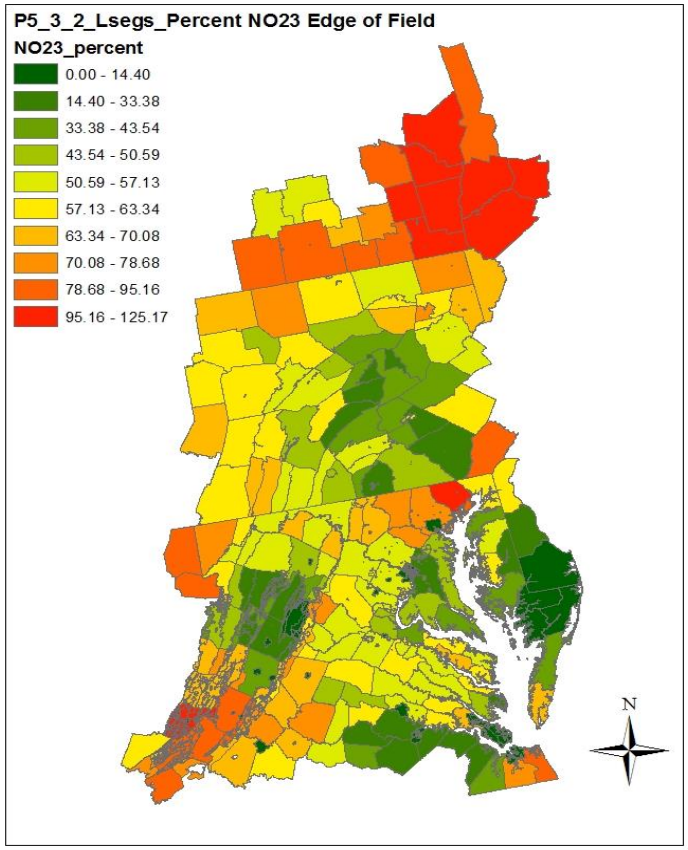

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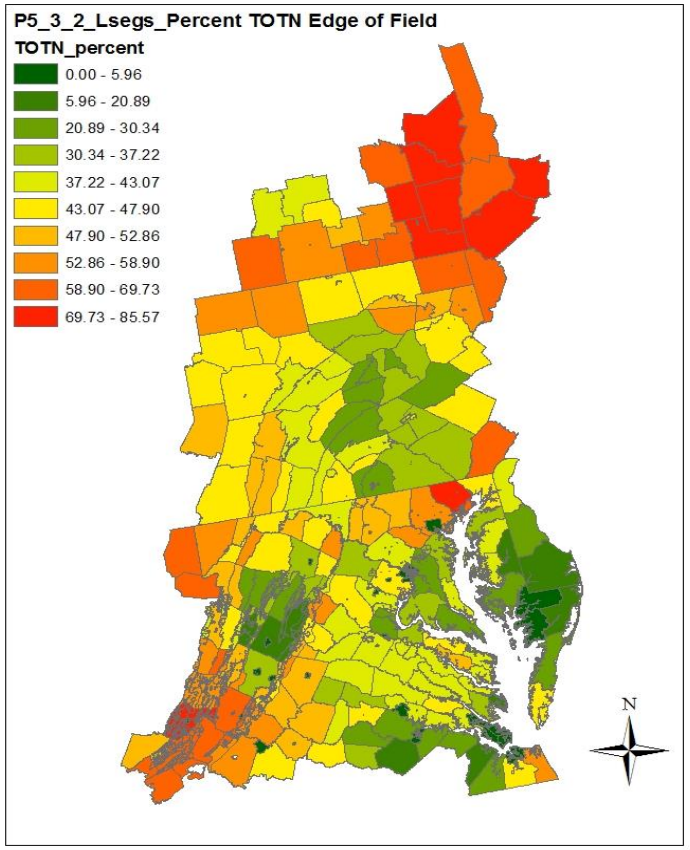

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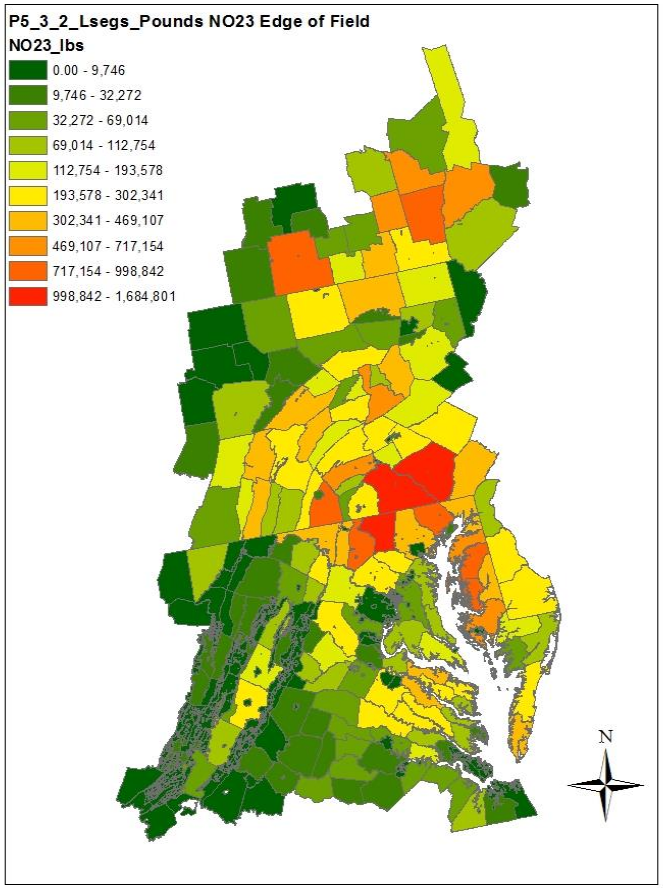

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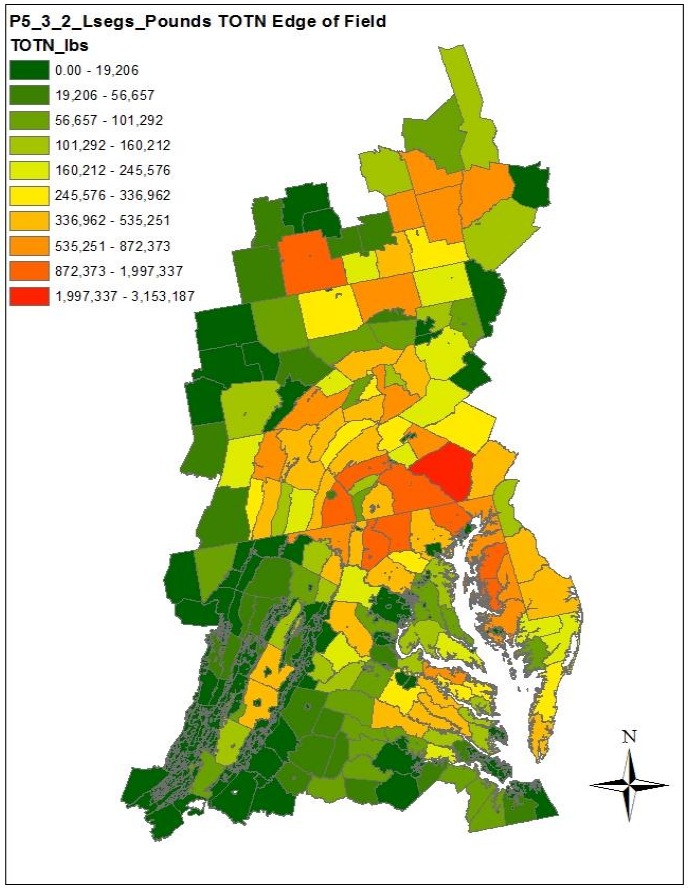

Discussion