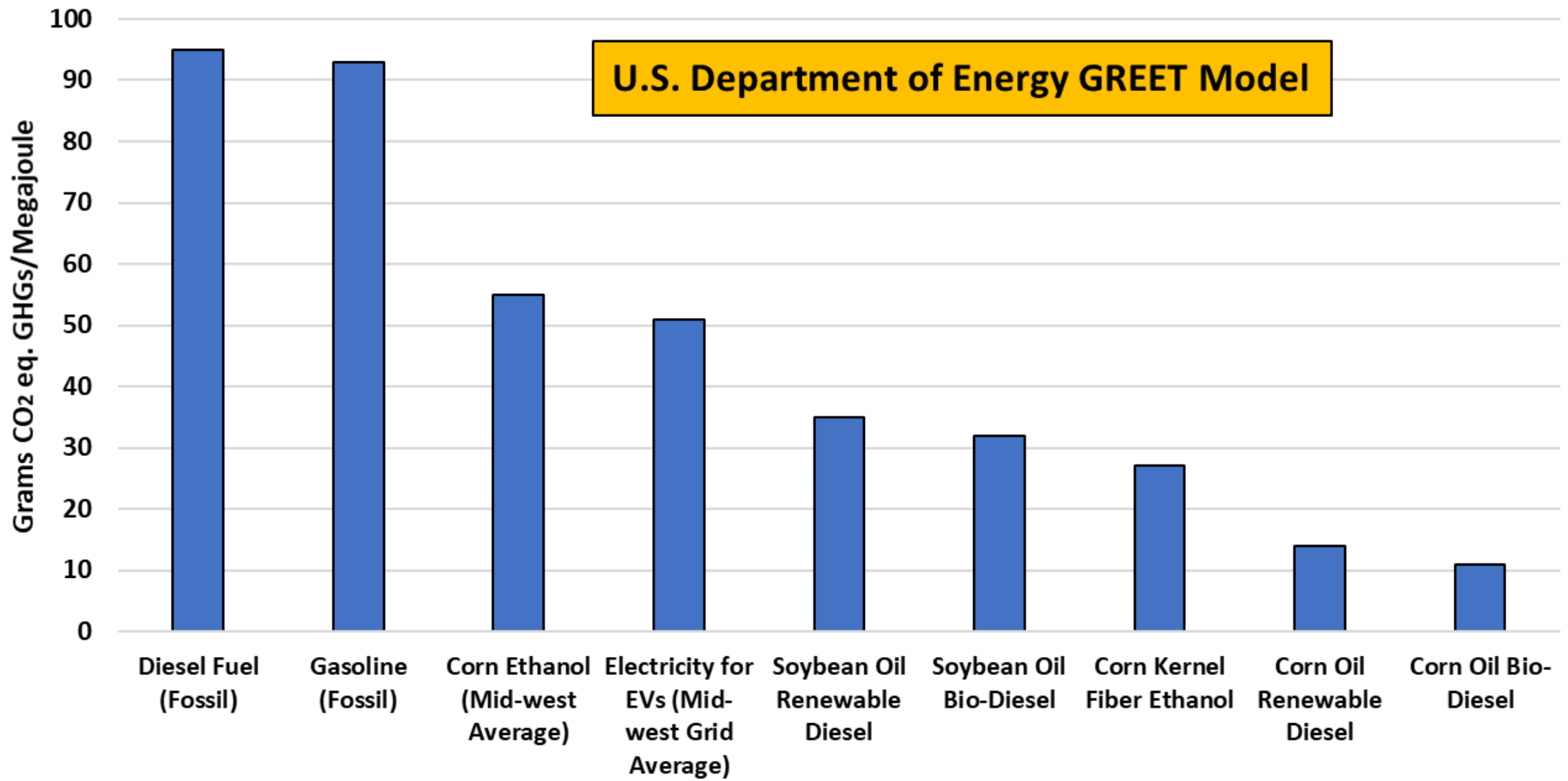


The Road to Zero Carbon Corn EtOH in Low Carbon Fuel Markets

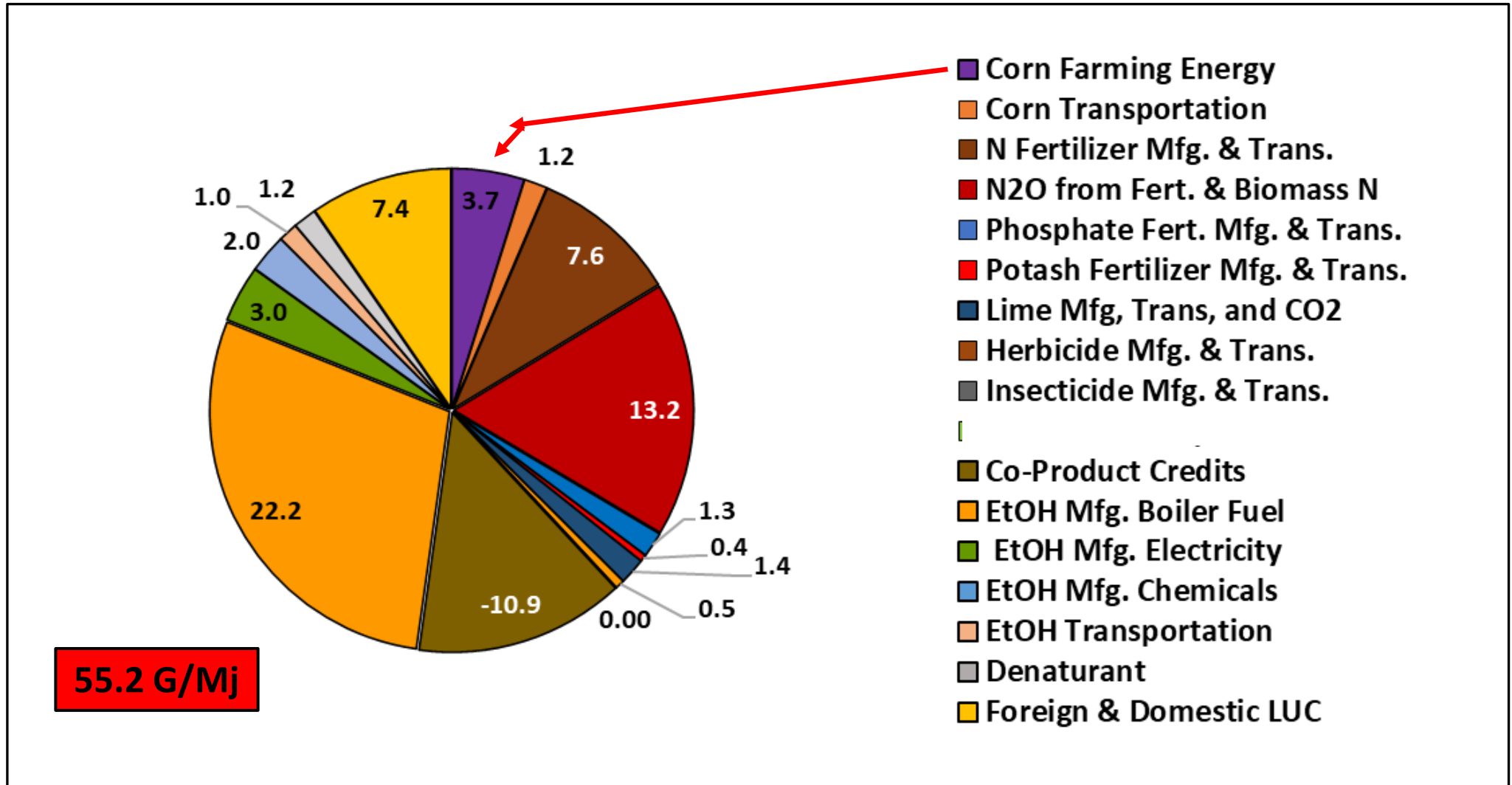
Ron Alverson
Crop Producer,
American Coalition for Ethanol BOD,
Dakota Ethanol BOD



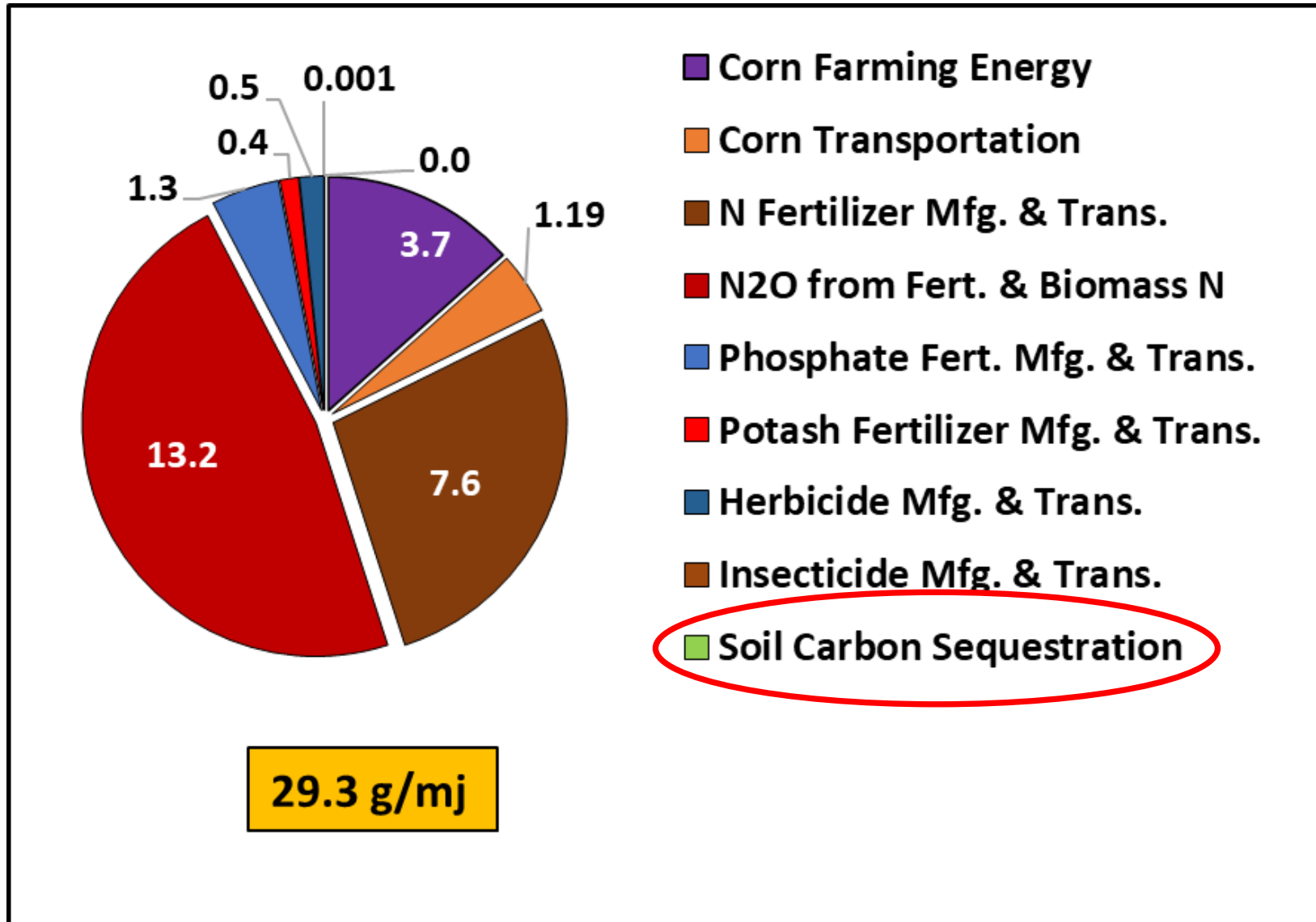
Transportation Fuel Carbon Intensity



U.S Dept. of Energy GREET Model Corn Ethanol Carbon Intensity (U.S. Midwest Average)



GREET Model Corn Production Carbon Intensity (U.S. Midwest Average)

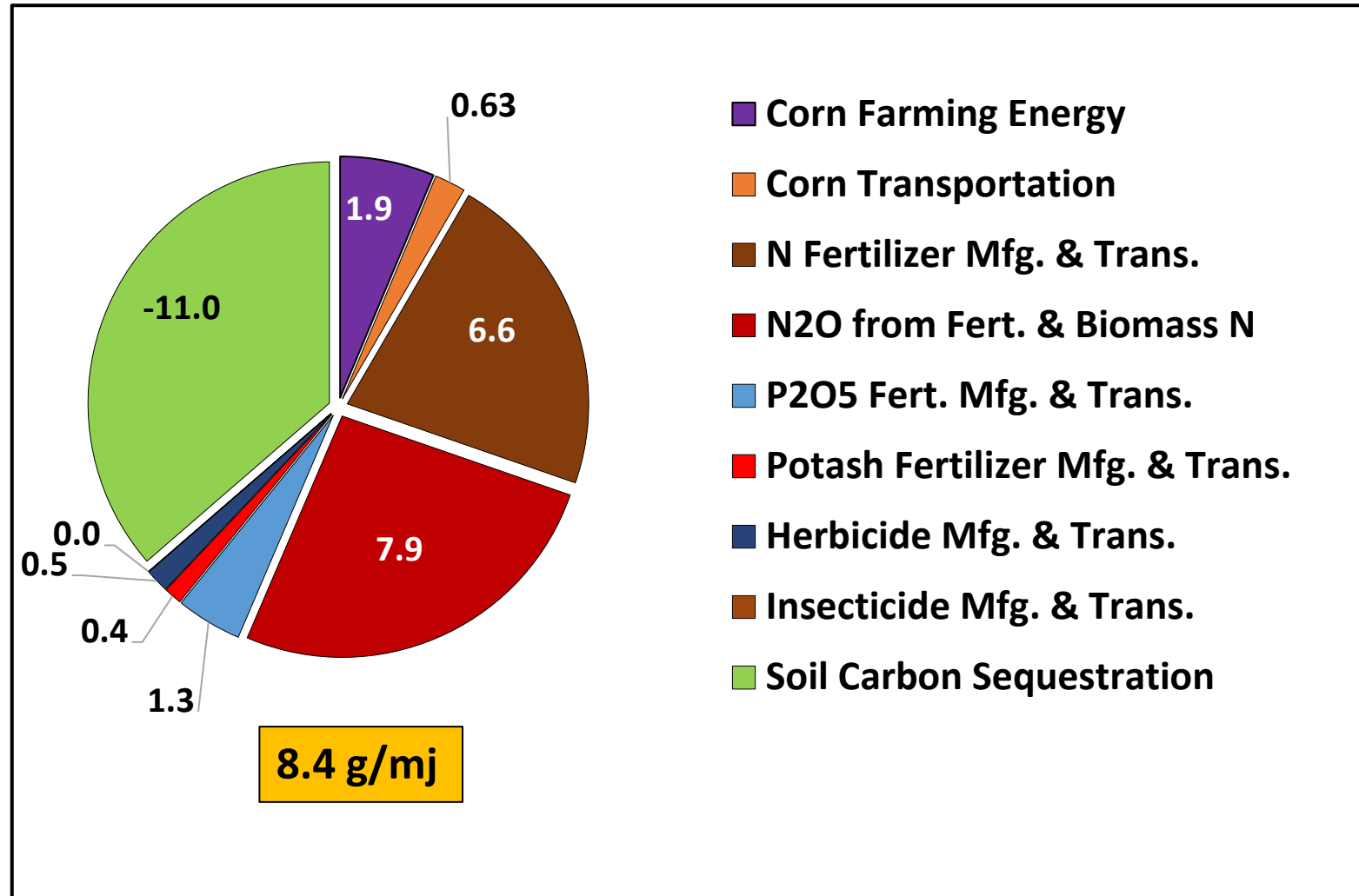


Low Carbon Corn Production Management

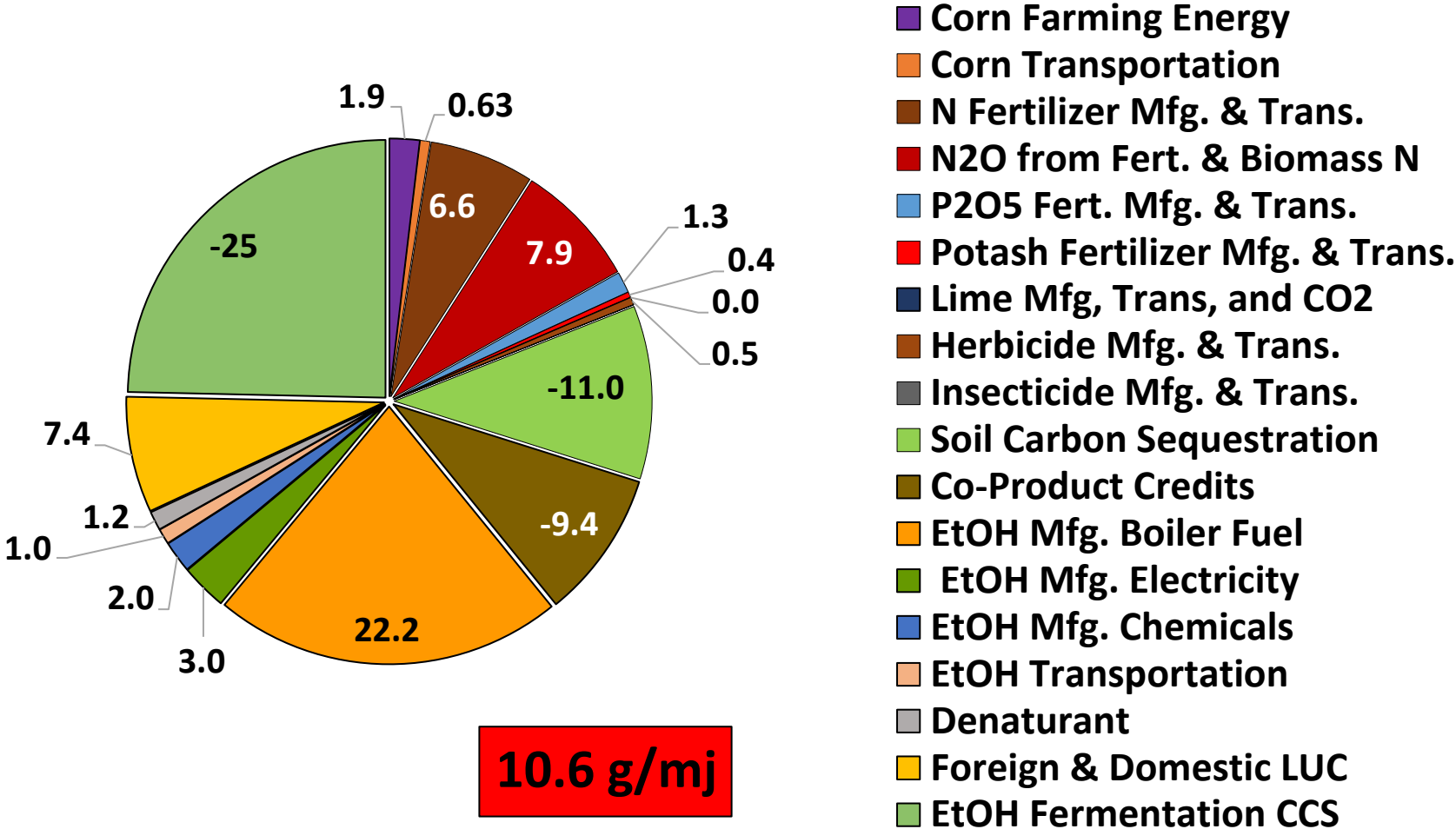
- | | |
|--------------------------------------------------|------------------------------------------|
| 1) Use High Blend Levels of Biodiesel | - Reduce CI by 2.4 grams = \$12 per acre |
| 2) Use Low C Forms of N Fert. (NH ₃) | - Reduce CI by 1 gram = \$5 per acre |
| 3) Use “4R” N Fertilizer Management | - Reduce CI by 5 grams = \$25 per acre |
| 4) Zero Lime Use | - Reduce CI by 1.4 grams = \$7 per acre |
| 5) No Tillage – SOC sequestration | - Reduce CI by 11 grams = \$55 per acre |
| Reduced Fuel Usage | - Reduce CI by 2 grams = \$10 per acre |

Total for Low Carbon Corn Management **22.8** grams = **\$114** per acre

U.S. Department of Energy REET Model Corn Production Carbon Intensity (Lancaster Co. with Optimized Low Carbon Corn Production Practices)



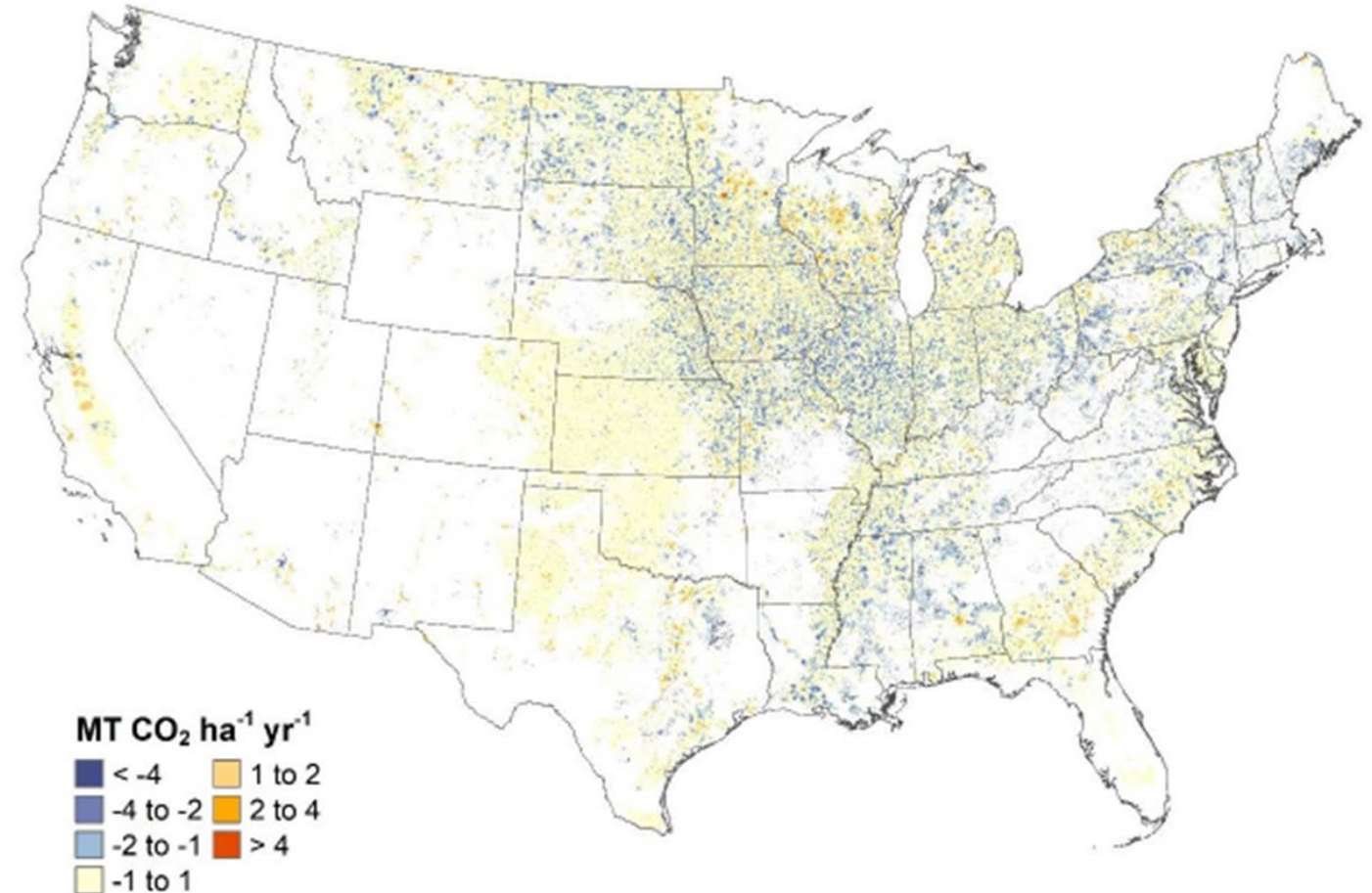
U.S. Department of Energy GREET Model Corn Production Carbon Intensity (Lancaster Co. with Optimized Low Carbon Corn Production Practices and CO2 Capture and Sequestration at Ethanol Plants)



**U.S. EPA
National
Greenhouse
Gas
Inventory
2021**

**Cropland
SOC is on
the Rise
Across the
Corn Belt!**

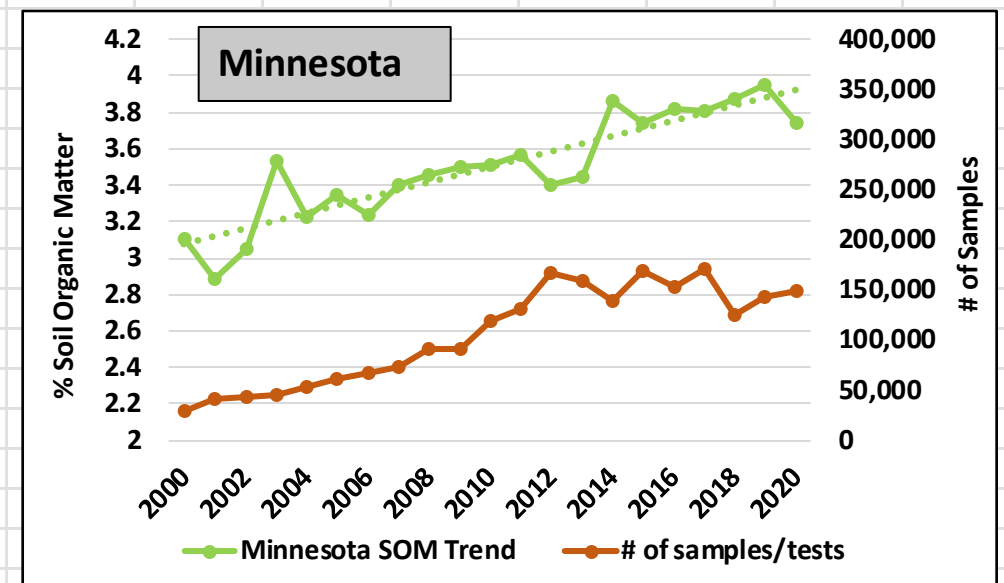
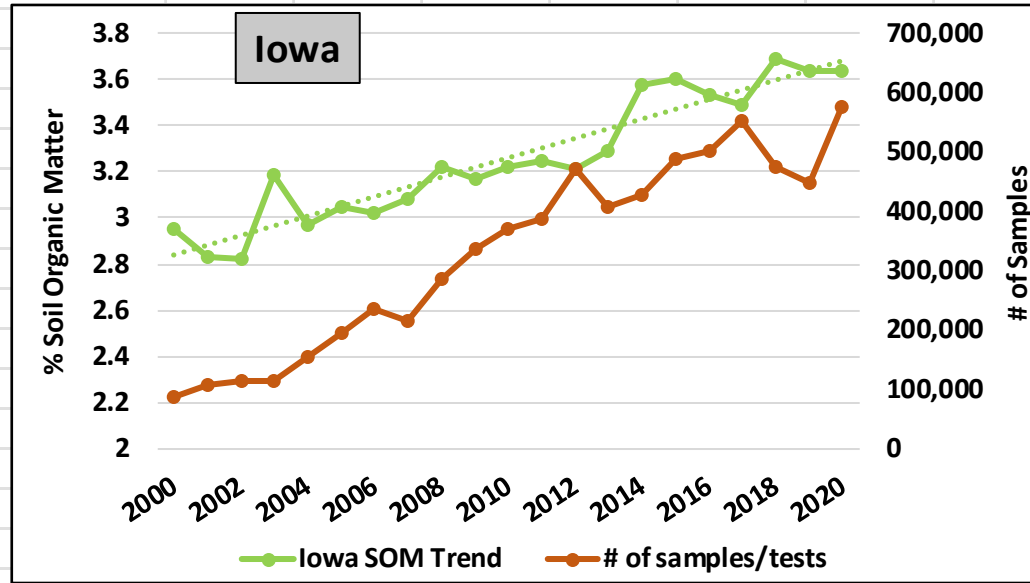
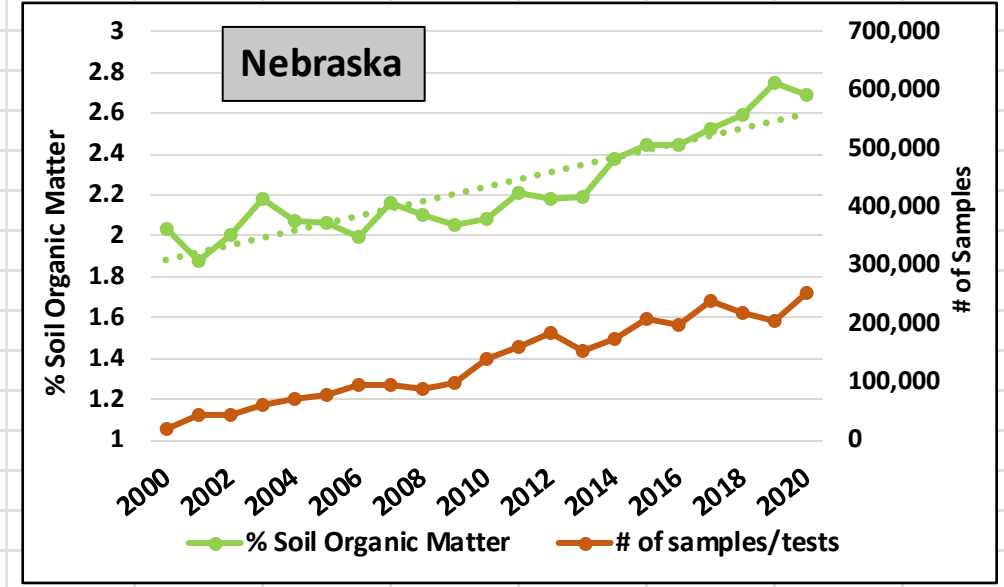
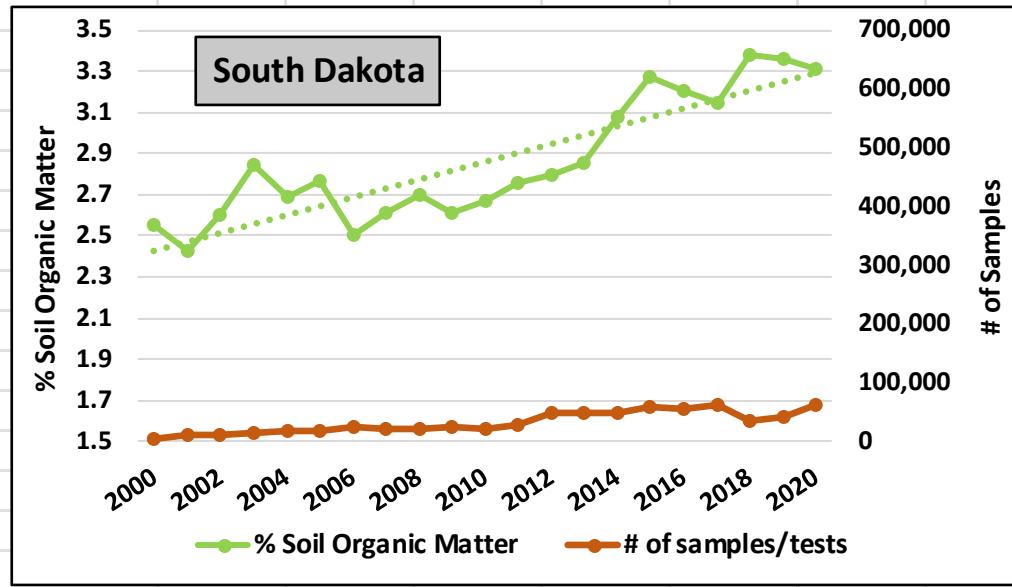
Figure 6-6: Total Net Annual Soil C Stock Changes for Mineral Soils under Agricultural Management within States, 2015, *Cropland Remaining Cropland*



Note: Only national-scale soil organic C stock changes are estimated for 2016 to 2019 in the current Inventory using a surrogate data method, and therefore the fine-scale emission patterns in this map are based on inventory data from 2015. Negative values represent a net increase in soil organic C stocks, and positive values represent a net decrease in soil organic C stocks.

Soil Organic Matter Content Trends in Mid-west Croplands

(More than 12 Million Soil Samples over 20 Years from Mid-west Labs)



Source: Jim Fasching, Mid-West Laboratories, Omaha, NE

Trends in U.S. Mid-west Corn Yield, Nitrogen Fertilizer Application Rate, and Nitrogen Use Efficiency

