Meeting 12/13/2022

Goal: Brainstorm and idea of scope of paper

To-Do List

* Fill in folders with papers that you want to put on literate review with a focus on FEW
  + Fill out excel spreadsheet with data

Divya: nutrient management flow of Chesapeake Bay, manure nutrients recycled using duckweed, LCA of long-term implementation of duckweed as fertilizer of soil, biogeochemical changes in regards to land applied digestate, circularity,

Chris: Project is now considering digesting duckweed

Elmin: Sebastian’s research of soil organic carbon and manure, Divya and Sebastian connection, Sebastian is interested in global persepctive, Elmin in favor of food, energy, water nexus

Farm-based AD and perennials

Sebastian: Research is in soil organic matter, working on process of formation and decomposition of soil, works with Sievers Farm, effect that manure application has on soil organic carbon,

Elmin’s proposed title: The Role of Farm-Based AD on FEW: a global perspective with a focus on sustainability. Manure application is applicable on food and water. Elmin/Abbie is focused on energy

Chris: Sustainability is for science-informed decision making, carbon markets, deep need for feedback on the how organic matter is changing, and can we account for it in policy schemes. IPPC tier 1 methods to account for emissions from farms. What does the literature say about RINs and the low carbon fuel market. Andrea Bosch on 100 studies of cover crops changed N2O flux from a field. Does it offset something else? Current proposed changes land cover and the impact of that. How is that changing over time and the digester itself, providing no leakage. Land-applied manure vs. Land-applied digestate and its long-term impacts. Dairies should be included in the farm-scale LCA system. Can we account for these gases and manure management as they are changing?

Elmin: what changes would you make to above title

Chris: title is fun, what subjects found in literature, lab is calculating flows of N and P in Chesapeake Bay, winter crops scenarios but how does that change, relationship between GHG and food waste, analysis of systems and all the stats of these systems, digestate characteristics, cellulosic biomass and manure co-digested with grasses,

Elmin: a few papers that intersectionality with FEW, one compared AD and compost, one looked at food waste and case studies, for the energy part gas yields, Ukraine and Russia and the current energy crisis with Europe’s increasing reliance of AD, leakage rates, manure looking really good with CI scores, focusing on sustainability instead of monetary, instead of CFS, Divya looking at water quality from digester coming off the farm, algae growth for removing pollutants from water

Sebastian: if we want to look at sustainability, soil organic matter is soil health indicator, contribution via organization

Chris: What keywords would you use? What kind of variables are critical to soil organic matter? Farm bill, how do we explain the benefits of G2G in this big context?

Sebastian: relevance of soil organic matter, carbon markets, relationship between carbon in soil and other ecological services

Chris: do the currently existing methods work for us? Planting of perennial grasses increases soil organic matter. Start a few and then they’ll come together through shared language.

Elmin: fill the folder in the C-CHANGE folder with literature papers, organizing via subjects, 20 papers per subject/ 3 subjects

Chris: spreadsheet with numbers, name, date, methane production, divvy up existing papers among students for reading and analysis, Chris is making spreadsheet in Box for running summary of papers

Divya and Sebastian communicate offline about soil organic carbon