



# Maryland Food System Resiliency Council

Environment & Production Subcommittee

June 23, 2022 1:00pm-2:00pm

## 1. Welcome

## 2. Group Discussion

- Soil Health and Regenerative Agriculture Practices
  - A. Invited Speaker: Ed Huling
    1. Background: Ed Huling studied human nutrition for about 35 years, 25 years ago Ed noticed a difference in fruits and vegetables from the US compared to other countries, which prompted the concern that the nutritional value of food is declining in the US. Ed experienced difficulty with USDA, however one senior scientist agreed to sponsor a yearlong research project.
    2. During the research project different growing trials in a greenhouse with various soils were completed, to observe the soil's effect on the food's nutritional value. Results from this study indicated the soil has a significant effect on the food's nutritional value, the worst results were from soil that was conventionally farmed over an extended time.
    3. Upon further research it was discovered the nutritional value of food has declined significantly for foods grown today compared to those grown 80-100years ago. Furthermore, the increased cost of the Healthcare system validates the need for nutritious foods, 15 years were dedicated to the study of improving the nutritional value of food. This objective was achieved, during the study significant levels for 24 different nutrients were determined. The last 10 years Ed's current focus is using soil health practices to sequester carbon and address



climate change. In order to facilitate change in practices within the farming community/adopt new farming practices, there must be an economic benefit for the farmers.

4. Research is extended to reforestation – forest soils were tested and found to be comparatively deficient to farming soil. Trees have a cooling effect on the planet, and create more clouds which reflect some of the sun’s energy from the earth. The soil amendment when applied on forest soil resulted in increased tree growth.

#### B. Open Discussion

1. There is no guidance for other farming practices outside conventional farming. Alternative practices are uncharted, but render significant improvements for soil health and nutrient value (i.e. increased protein content by 50% for animal forages, doubling weight gain, and return of species like dung beetles).
2. Was an economic study/full lifecycle analysis completed? Dr. Rubenstein at Princeton University completed a study to determine measurable outcomes, comparing forage from a control area to the experimental area which indicated significant yields. (Possible recommendation for more research)
3. When minerals are put back into the soil it impacts flavor positively, once the soil system was working appropriately pesticides, fungicides, etc. were no longer needed. When minerals are returned the immune system of plants function improves (i.e. silica in soil).
4. The [study currently funded by the Grantham Foundation](#) provides the soil amendment materials (creating a lower risk economically, enabling participation for farmers), farmers partner with the study for 5 years sharing the farmer’s increased income.
5. In order to promote soil resiliency or farming system resiliency, organic matter in the soil must be increased to make the soil more porous for heavy rain events, providing



water storage for dry periods (directly linked with climate change, i.e. hotter temperatures).

6. Long-term objective of the study is to set up a non-profit farmer owned co-op. The co-op can provide education for best practices, and provide the soil amendment.
7. Policy should be linked to outcome based measures instead of performance based.
8. In Maryland some crops are not grown due to low yield, from a policy standpoint there should be support for protective growing in passive solar high tunnels
9. Antinutrients can be an incentive to change current farming practices

### **3. Next steps and adjourn**

- Drafting Recommendation for the Nov 1<sup>st</sup> Report