DOVETAIL INTERN REFLECTS ON ATTENDING SOIL HEALTH SUMMIT

By: Seamus McCarthy

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Over my Spring break, I had the privilege of attending the Midwest Soil Health Summit, a modestly-sized convention organized by the Sustainable Farming Association. The summit lived up to my expectations in its content and speakers, and was right up my alley of interest. The event consisted of guest speakers, organization tables, and social hours where farmers and other soil enthusiasts could make connections and catch up with each other. After having the chance to attend this conference, it seems only fitting to explain why all these people and I care so much about dirt, and why there's a great deal to be excited about when it comes to dirt's future.

Research suggests that globally, soil is the second largest carbon sink on the planet, exceeding the current quantity of atmospheric carbon dioxide and beaten only by the ocean in its current capacity. There is of course more complexity to be found in the details, but soil's role as a major carbon sink and how it has changed as humanity's environmental footprint has grown suggests that soil can be influenced - for better or for worse - by human decision-making. This is where agriculture steps in, both as the major culprit of soil carbon loss and as the primary solution to its recovery.

Tillage, monocropping, and excessive fertilizer inputs have drastically worn down global soil carbon and have come with a whole host of associated environmental problems. Beyond the drastic carbon emissions associated with the release of stored soil carbon, the production of fertilizer, and the fossil fuels burned by agricultural machinery, our soil globally is being eroded by poor management and increasing weather extremes, and the environment being polluted by fertilizer and pesticide runoff. Soil can be rebuilt in the form of organic matter by a wide array of practices such as no-till, cover cropping, organic cultivation, and biochar to name a few. And rebuilding soil degraded by modern agricultural practices has far more benefits than just carbon sequestration.

Building up soil organic matter and applying practices to maximize soil health makes farmland far more resilient in the face of growing climate extremes. A “healthy” soil, with high organic matter, aeration, and microbial activity will absorb water faster, hold it for longer, and will not erode in the process. Plants will interact with soil organisms to obtain from organic matter the nutrients they require for growth and health, improving their resistance to pests and disease. A more biologically diverse soil will make life more difficult for pathogenic organisms and therefore reduce inputs of chemical pesticides and fungicides. Soil health offers a cascade of beneficial effects for both people and the planet. Understanding the reason soil health matters is necessary to grow excited for the technical side of the soil health conference, best explained by describing what I saw.

Soil health is complex, as demonstrated by the many organizations involved in the soil health conference. One stand was marketing products for extracting and applying compost microorganisms to soil, since a microbially diverse soil is harder on disease and helps retain soil structure. Another stand representing the University of Minnesota was promoting the work done by plant breeders to develop perennial grains, whose deep roots stabilize soil, accumulate carbon over time, and reduce weed pressure. Other stands displayed the visual difference between stable and loose soils, or offered programs aimed to educate farmers about and assist with grant funding for regenerative practices. It was a true privilege to get to see all of this work for myself.

One piece that was never mentioned in the soil health conference was the role of soil health in the preservation of forest health. This isn't a surprise given the conference's focus on (primarily annual) agriculture, but one must remember that soil health principles are more or less universal and can therefore be applied to any land-based work. Improving and maintaining the soil health in a tree farm, managed forest, restored ecosystem, or some other form of directly managed landscape provides huge benefits to its functionality as well as to the non-human life which circulates everywhere on earth. Understanding the universal importance of soil health brings to light the commonalities between different forms of ecosystem management. Forestry, agriculture, conservation and restoration are different manifestations of the same fundamental relationship: that between a dynamic system of interacting elements which would continue to operate and change without direct human intervention, and the desires of the human actors who wield the power to influence, but not control, that system.

Now that you're sufficiently convinced that soil is fascinating and important to a huge array of sustainability topics, I'd like to spread some awareness of programs, information, and organizations whose job it is to spread even more knowledge and awareness. The Sustainable Farming Association has a huge repository of information as well as current events listed on the soil health portion of their website. The Land Stewardship Project has a similar soil health page, and is another fantastic sustainable agriculture nonprofit located in and around the Twin Cities. If you're looking to immerse yourself more generally in the world of sustainable food systems in Minnesota, MISA (Minnesota Institute for Sustainable Agriculture) has an organizations page which, while not pretty, is certainly effective in providing a big list of incredible organizations working across many different aspects of our state food system. There is so much more to learn and hope for once you are able to see the possibilities presented by these organizations and the future they are working towards. With that, the responsibility is now in your hands to learn what you can and make your own judgements about the role you wish to play in creating this future.

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