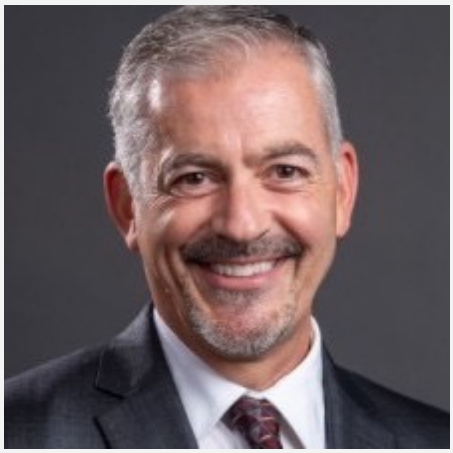
Viewpoint



FROM THE DESK OF PROF. JIM IPPOLITO

Anthropogenic-induced climate change is forcing producers globally to address resiliency and adaptability in agroecosystems. In essence, producers, hand in hand with scientists, are creating the agroecosystems of tomorrow. Those ecosystems need to be able to store more soil carbon, to supply carbon (i.e., energy source) to those microorganisms that force nutrient turnover and cycling, and to feed plant nutrients in a way so that these ecosystems are more self-reliant. The agroecosystems of tomorrow need to be at their peak in terms of soil physical, chemical, and biological properties for a given area or region. This "sweet spot", where these three soil properties intersect, is termed soil health. With proper soil health, producers can raise crops that are healthy, promoting human and environmental health (i.e., the One-Health concept). My 30+ year career as a soil scientist has focused specifically on soil health, with concepts applied to plant, human, and environmental health. For example, scientists have been able to boost wheat yields over decades of breeding. Greater yields may be considered a positive in terms of feeding an ever-growing world population, yet there is an environmental and human health cost associated with increased yields. In the upper US Great Plains, decades of increased yields have reduced plant-available soil Zn to concentrations considered equal to or deficient for wheat. The soil signature is apparent when determining wheat grain Zn concentrations, which are well below the 25-ppm threshold for human nutrition (Harvest Plus: go.osu.edu/harvest-plus). With approximately 2 billion (yes billion) people not consuming enough micronutrients, including Zn (BBC: go.osu.edu/zinc-bbc), this can lead to reduced growth and development in humans; we are doing a disservice to mankind not to address issues associated with a lack of nutrient biofortification. My work in connecting soil health to plant and human health in this context has been a focus of mine for decades and is an area of research I will continue to focus on in the future. Supported by funds from the Endowment created by Dr. Lal, our team will continue to connect the intimate linkages between improvements in soil C, to improvements in soil health, that will lead to an improved understanding of these factors and the intimate linkages to plant, human, and environmental health.

Sincerely,

Jim Ippolito
Dr. Rattan Lal Endowed Professor