Soils and Health: A new or old concept?

Photo by M. Ulmer
“There is nothing new under the sun”
-Dr. Robert Kohl (SDSU, ret)
-Ecclesiastes 1:9

“See what the land is like and whether the people who live there are strong or weak, few or many. What kind of land do they live in? Is it good or bad? . . . How is the soil? Is it fertile or poor? Are there trees on it or not? Do your best to bring back some of the fruit of the land.” (Numbers 13:18–20).

-Moses (circa 1400 BC)
“Men are like plants; the goodness and flavor of the fruit proceeds from the peculiar soil and exposition in which they grow”

-de Crèvecœur (circa 1700)
With regards to poor soils, which led to: “stoop-shouldered, poverty-stricken people”

“if we feed the soil it will feed us”

“only productive soil can support a prosperous people”

“to be properly and healthfully fed we must have food from soils containing the elements necessary to maintain good health”

-R.A. Hayne (1940)
“Soil Health” vs “Soils and Health”

• Soil Health:
  • “capacity of soil to function and sustain biological productivity, maintain environmental quality, and promote plant, animal and human health”

• Soils and Health:
  • Links between “soil” and “health” have been documented
  • Is there a definition for this?
“Interrelationship between the soil as a provider and protector of an individual’s physical and mental health”

-Tom DeSutter (2016)
“Provider” and “Protector” for “Physical Health”

• **Provider**
  • Provides something to increase physical health
  • Provides something to decrease physical health

• **Protector**
  • Processes occur whereby physical health is increased or not harmed
Soils and Health

“Physical”

Nutrients

Water Purification

Medicines

Food Security

Inorganic Pollutants (heavy and radioactive)

Organic Pollutants

Soil-borne Pathogens

Exposure to bacteria

Geophagy

Climate Change

Soil: Influence on Human Health

Eric C. Brevik a, Lynn C. Burgess
“Provider” and “Protector” for “Mental Health”

• Provider
  • Provides something to increase mental health
  • Provides something to decrease mental health

• Protector
  • Processes occur whereby mental health is increased or not harmed
Accidental spills, pipelines; new roads; ‘how does this impact my soil?’

Disruption

the act of digging in the dirt; rewarding and therapeutic

Nourishment

Responsibility
land “handed down”; generational

Life ‘soil is life’; sense of ‘who I am, I am a farmer’

Soils and Health “Mental”
sense of worth; stigma about getting mental help--- or asking for help; fear of failure

Depression/Anxiety

Accomplishment
Conservation; large yields; the act of working with one’s hands

Services
Ecosystem services; aesthetic value

Pride
Work ethic; how fields looks; awards for stewardship; monetary income

Accidental spills, pipelines; new roads; ‘how does this impact my soil?’

Disruption

the act of digging in the dirt; rewarding and therapeutic

Nourishment

Responsibility
land “handed down”; generational

Life ‘soil is life’; sense of ‘who I am, I am a farmer’

Soils and Health “Mental”
sense of worth; stigma about getting mental help--- or asking for help; fear of failure

Depression/Anxiety

Accomplishment
Conservation; large yields; the act of working with one’s hands

Services
Ecosystem services; aesthetic value

Pride
Work ethic; how fields looks; awards for stewardship; monetary income
Moving forward…

“Interrelationship between the soil as a provider and protector of an individual’s physical and mental health”
Where do we go from here?

• Education about “soils and health” and “soil health” are needed
• Multidisciplinary studies are the best option
• Keeping soils in the conversation
The past, present, and future of soils and human health studies

E. C. Brevik1 and T. J. Sauer2

1Department of Natural Sciences, Dickinson State University, Dickinson, ND 58601, USA
2USDA-ARS, National Laboratory for Agriculture and the Environment, Ames, IA, USA

Correspondence to: E. C. Brevik (eric.brevik@dickinsonstate.edu)

Mud
A MILITARY HISTORY

C. E. Wood
Soils and Health

Tom DeSutter
North Dakota State University
2017 Soil Soil-Water Training