

Soil Health Values and Resulting Ecosystem Services Provided to Communities

Draft updated: 6/7/21 4:53 PM

Value 1	Value 2	Value 3	Indicator Category	Indicator	Measured Variable	Tests	Customer(s)	Ecosystem Service(s)	Measurement Type	Measurement Feasibility	Measurement Accuracy	Pricing/Payment Feasibility
Improved air quality	Improved public health		Air	Lower air temperature as compared to surrounding areas/regions during heat waves		NASA satellite imagery	Public	Human health	Satellite	Moderate	Medium	Difficult
Improved water quality	Increased crop productivity		Compaction	Decreased bulk density		Bulk density test	Farmer and public	Water quality, flood mitigation	Field	Easy	High	Easy
Improved water quality	Increased crop productivity		Compaction	Decreased soil compaction		Soil probe	Farmer and public	Water quality, flood mitigation	Field	Easy	High	Easy
Increased regional food security			Crop Productivity	Increased plant health, resilience, and structural integrity		Shelf life of crops, visual assessment after storms, pathogen resistance in fields, crop insurance claims	Farmer and public	Food production	Unknown/Multiple	Difficult	Low	Difficult
Increased crop productivity			Crop Productivity	Yield/production increases		Remote satellite, aircraft or drone measurements w/ production models and weather data	Farmer	Food production	Satellite	Moderate	High	Difficult
Increased crop productivity			Crop Productivity	Production/yield per inch of rainfall in arid or semi arid areas, or during drought (production increases)		Rain gauges and production/yield recordkeeping	Farmer	Drought resilience	Field	Difficult	Low	Difficult
Increased crop productivity			Crop Productivity	Increasing length of green season		Satellite imagery - Normalized Difference Vegetation Index (NDVI) or Green Chlorophyll Index (GCI)	Farmer	Carbon sequestration	Satellite	Moderate	Medium	Difficult
Increased crop productivity			Crop Productivity	Regulated soil temperature		Soil temperature meter	Farmer	Food production	Field	Easy	Medium	Difficult
Improved water quality	Increased crop productivity		Stability/Erosion	Increased rootability		Visual soil assessment	Farmer and public	Carbon sequestration	Field	Difficult	Low	Difficult
Improved water quality	Increased crop productivity		Stability/Erosion	Increased aggregation and aggregate stability		Visual soil assessment Slake test. Aggregate stability tests.	Farmer and public	Nutrient attenuation/retention	Field	Moderate	Medium	Moderate

Improved water quality			Stability/Erosion	Decreased soil erosion from water & wind		Erosion measurements	Farmer and public	Nutrient attenuation/retention	Model	Moderate	Medium	Easy
Increased water storage	Improved drought resilience		Water Storage/Infiltration	Increased water holding capacity		Water content measurements	Farmer and public	Flood mitigation	Field	Easy	Medium	Moderate
Reduced flooding	Improved flood mitigation		Water Storage/Infiltration	Better regulated flow of streams and rivers (fewer extremes)		USGS stream flow gauges/maps, flash flood events.	Public	Reduced infrastructure maintenance	Stream	Moderate	Medium	Difficult
Reduced flooding	Flood mitigation		Water Storage/Infiltration	Decreased puddling, ponding, pooling, flooding		Visual or video camera monitor	Farmer and public	Flood mitigation	Field	Difficult	Low	Difficult
Increased drought resilience	Improved drought resilience		Water Storage/Infiltration	Regulated soil moisture		Soil moisture meter	Farmer	Drought resilience	Field	Moderate	Medium	Difficult
Increased drought resilience	Improved drought resilience		Water Storage/Infiltration	Surface water flows and pond and lake levels regulated/extended during typically dry season		Stream gauges, USGS streamflow maps	Farmer	Drought resilience	Stream	Difficult	Medium	Difficult
Increased water storage	Improved drought resilience		Water Storage/Infiltration	Increased groundwater levels		Ground water-level measurement	Farmer and public	Groundwater recharge, Drought resilience	Field	Difficult	Medium	Difficult
Increased water storage	Carbon storage		Water Storage/Infiltration	Organic Matter		Soil test	Farmer and public	Carbon sequestration, flood mitigation, drought resilience	Field	Easy	Medium	Easy