



United States Department of Agriculture

Soil Health Literature Matrix Data Dictionary— Definition for matrix of soil properties and considerations



The Soil Health Literature Matrix Data Dictionary for the matrix of soil properties and considerations for peer-reviewed, published documents relating to the effects of conservation practices on soil health, soil resiliency, and dynamic soil properties that impact major soil functions.

USDA Natural Resources Conservation Service
National Soil Survey Center
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Column Short Name	Column Full Name	Data	Definition
Reference, Citation & Summary	Peer Reviewed Literature Citation and Short Summary of Literature	Shortened citation from NRCS summary of peer reviewed literature	This entry provides a citation, last name of the first author listed, year the peer reviewed literature was published, and a short summary of basic contents completed by NRCS soil health specialists. Summaries were initially copied from the paper's abstract and/or conclusion. Non-essential introductory and/or conclusion comments/sentences were removed. Scientific names and statistical terminology were also replaced with common terms to aid in readability. Verbiage not relevant to soil health may also have been removed.
Name	Literature File Name	Link to peer reviewed literature pdf file	This entry contains the first author's last name and year published with a link to pdf file of peer reviewed literature. (Full paper only available to USDA employees)
LndUse	Landuse	C, P, R, F, NA	<u>C = Cropland</u> includes Hayland, Conservation Reserve Program (CRP), Orchards, Vineyards, Alley cropping; <u>P = Pasture</u> includes Silvopasture; <u>R = Rangeland</u> includes Savannahs and Shrub lands; <u>F = Forest</u> includes Woodland, land used for Agroforestry and forest utilized for grazing and other purposes; NA = landuse not applicable.
Stnd	NRCS Conservation Practice Standard Number(s)	NRCS Conservation Practice Standard Number or Not Applicable (NA)	NRCS Conservation Practice Standard Number is the number assigned to conservation practices contained in the National Handbook of Conservation Practices. Peer reviewed literature typically does not include the exact conservation practice name, so a correlation was made by NRCS soil health specialists. Multiple conservation practice number entries, or not applicable (NA) are possible. Refer to link below http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/cp/ncps/
Environmental Considerations			
Irrig	Irrigated or Non-Irrigated	I, NI, or NA	I = Treatments were irrigated; NI = treatments were rain-fed/dryland; NA = does not apply.
Mst Reg	Climatic Moisture Regime	A, SA, SH, H, or NA	General climatic moisture regimes A = Arid; SA = Semi-Arid; SH = Sub-Humid; H = Humid; NA = not applicable to a specific moisture regime or does not apply. Multiple entries are possible. Listing the moisture regime from where the study was conducted does not imply findings can always be extrapolated anywhere the moisture regime occurs. The general correlation to U.S. Soil Taxonomy soil moisture regimes as modified by Van Wambeke, 1982, are as follows: Arid = Typic Aridic; Semi-arid = Aridic Ustic, Ustic Aridic, Xeric Aridic, Xeric; Sub-Humid = Typic Ustic, Udic Ustic; Humid = Udic, Perudic. refer to links below http://www.nrcs.usda.gov/Internet/FSE_MEDIA/nrcs142p2_050436.jpg http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052760.pdf

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Temp Reg	Soil Temperature Regime	IHT, IT, IM, MT, HT, T, M, F, C, or NA	Soil temperature regimes IHT = Isohyperthermic; IT = Isothermic; IM = Isomesic; MT = Megathermic; HT = Hyperthermic; T = Thermic; M = Mesic; F = Frigid; C= Cryic; NA = not applicable to a specific soil temperature regime or does not apply. Multiple entries possible. Listing the temperature regime the study was conducted in does not imply that the findings can be extrapolated to anywhere the temperature regime occurs. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/use/maps/?cid=nrcs142p2_054019
Physical Soil Properties			
Aggrtn	Aggregate Stability	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on aggregate stability, dry or wet aggregate stability, or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
BD	Bulk Density	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on bulk density or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these is not included.
Cmpctn	Soil Compaction, Penetration Resistance, Rooting Depth	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on soil compaction, penetration resistance measurements below the soil surface, tillage/plow pans, or rooting depth restrictions is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation these topics is not included.
Crst/Seal	Soil surface crusting, and/or sealing	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on soil surface crusting/sealing, surface penetration resistance, or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
Inflt/Drn	Soil Infiltration/ Runoff, Drainage Water Management	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on infiltration/drainage water management, runoff measurement, internal soil water drainage, or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
Ksat	Saturated Hydraulic Conductivity	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on saturated hydraulic conductivity or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices these topics is not included.
Pore	Pore Size, Porosity, Pore Type	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on pore size/type, porosity, pore continuity, macropores, micropores, or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.

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Soil H2O	Soil Water Retention, Available Water Holding Capacity	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on soil water retention/available water holding capacity or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
Strctr	Soil Structure	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on soil structure (blocky, platy, granular, overall soil structure) or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
Srf Rgh	Soil Surface Roughness	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on soil surface roughness or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
Chemical Soil Properties			
EC/Na	Soil Electrical Conductivity, Salinity, Soil Sodium Levels, or Sodic Soils	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on soil electrical conductivity, Veris EC measurements, EC measurements related to nutrient cycling, salinity, soil sodium levels/sodic soils, or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
Hvy Mtls	Heavy Metals	Yes or No	If "Yes" is shown, information about the impact of heavy metals from application of sludge or other organic waste and other related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
Nitr	Soil Nitrogen (N) N-Cycle, N-losses, N-levels	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on nitrogen (N) cycle, N losses, N levels, N management, N forms or related N topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
pH	Soil pH	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on soil pH, or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
Phos	Soil Phosphorus (P) Cycle, P-losses, P-levels	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on soil phosphorus cycle, phosphorus losses, phosphorus levels, or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.

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Biological Soil Properties			
Bact	Soil Bacteria	Nfix, Oth, or No	Nfix = Nitrogen Fixing Soil Bacteria including Rhizobia, Free Fixing Nitrogen Bacteria, or related topics; Oth = other types of soil bacteria or related topics; No = impacts of conservation practices on these topics is not included.
Enz/Gl	Soil Enzymes and Glues	Enz, Gl, No	Enz = Soil enzymes; Gl = Soil Glues; No = the impacts of conservation practices on soil enzymes/glues, or related topics is not included.
Erthwrm	Earthworms	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on earthworms or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
Fungi	Soil Fungi	AMF, Oth, No	AMF = Arbuscular Mycorrhiza Fungi, Oth = Other Types of soil fungi, fungi types, fungal hyphae, saprophytic fungi, or related topics; if "No" is shown, the impacts of conservation practices on these topics are not included.
Microbes	Soil Microbes	MicCC, BioAct, FdSrc, No	MicCC = Soil Microbial Community Composition, BioAct = Soil Biological Activity, Soil Microbial Respiration, or Microbial Biomass/Microbial Population measurements, FdSrc = Active Soil Carbon, Labile Soil Carbon, Phenolics, or other Soil Microbial Food Sources, No = impact of conservation practices on these topics is not included.
Orgnms	Soil Organisms	Prtz, Nem, Artpd, No	Prtz = Protozoa; Nem = Soil Nematodes or related topics; Artpd = soil arthropods (insects, arachnids, crustaceans, chilopods, diplopods, etc.) or related topics; No = the impacts of conservation practices on these topics is not included.
Plnt Dis	Plant Diseases	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on plant/root/leaf or soil-borne diseases impacting plants, or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
Plnt Psts	Plant Pests	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on plant pests (weeds, insects, root feeding nematodes, rodents, and other crop/plant damaging pests), or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
SOM	Soil Organic Matter	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on soil organic matter, soil organic carbon, carbon sequestration in soils, or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.

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Miscellaneous Considerations			
Econ	Economics	Yes or No	If "Yes" is shown, information about the impacts of conservation practices-on economics, budgets, profit, or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
GHGs	Green House Gas Emissions	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on greenhouse gases such as carbon dioxide, methane or nitrous oxides, mitigation or related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
Org Farm	Organic Farming Systems	Yes or No	If "Yes" is shown, information about the impacts of conservation practices used in organic farming systems is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices used in organic farming systems is not included.
Pest Mv/Dg	Pesticide Movement/Degradation	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on pesticide losses to water through leaching, runoff or adsorbed to sediment; pesticide degradation in soils; or related soil pesticide topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices on these topics is not included.
SH Assmt	Soil Health Assessments or Soil Health Indexes	Yes or No	If "Yes" is shown, information about soil health or soil quality assessments, indicators, or indexes that relate to conservation practices is contained in the peer reviewed literature, and if "No" is shown, the impact of conservation practices on these topics is not included.
vs Cnv Till	No-tillage system compared to a conventional tillage system	Yes or No	Yes = A no-tillage system is compared to a conventional tillage system. No = A no-tillage system was not compared to a conventional tillage system or is not applicable. No also applies when a reduced tillage system is compared to a conventional tillage system.
Ylds	Grain, Forage, Timber, Fiber, and Other Crop/Plant Yield or Production	Yes or No	If "Yes" is shown, information about the impacts of conservation practices on grain, forage, fiber, biomass, Animal Unit Months, timber or other crop/plant yield or production related topics is contained in the peer reviewed literature, and if "No" is shown, the impacts of conservation practices these topics is not included (applies to all land uses).