Strengthening soil taxonomy ontology software for description and classification of USDA soil taxonomy up to soil series

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ABSTRACT ORIGINAL

Software's using ontology as their knowledge base are of due importance now a days due to their synergism with agents and Semantic Web Architecture. Ontologies provide domain language by defining domain concepts and relationships between them which is ultimately meaningful to both humans and machines. This is IEEE standard Web Ontology Language (OWL). Taxonomies are well-defined hierarchy existing in a standardized form to describe real world concepts in various domains of knowledge. The indispensable role of ontology in Agriculture is to convert the unstructured knowledge into structured one, sharing across application. Das (2010) and Das et al. (2012) developed Soil Ontology for USDA soil taxonomy for orders available in India to only Sub group level. This newly developed Soil Ontology has been strengthened and is now available up to family and series level for orders in India and also for the twelve orders worldwide. The web based application follows N-tier architecture. By mentioning the soil properties one can easily get information related to soil taxonomy and also newly found soils can be classified. Information edition or addition facilities of soil taxonomy are available with domain experts. Advance Search and series navigation keys can be use to easily get the detailed information of taxonomic hierarchy and state wise series description respectively. Its knowledge base is in the form of Ontology.