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Amy Swan

Colorado State University - Fort Collins, amy.swan@colostate.edu

Mark Easter

Colorado State University - Fort Collins

Kevin Brown

Colorado State University - Fort Collins

Mark Layer

Colorado State University - Fort Collins

Keith Paustian

Colorado State University - Fort Collins

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COMET-Planner: Carbon and Greenhouse Gas Evaluation for USDA-NRCS Conservation Practice Planning

Amy Swan¹, Mark Easter², Kevin Brown³, Mark Layer⁴ and Keith Paustian⁵

¹ amy.swan@colostate.edu, Natural Resource Ecology Laboratory, Colorado State University

² mark.easter@colostate.edu, Natural Resource Ecology Laboratory, Colorado State University

³ kevin.dwayne.brown@colostate.edu, Natural Resource Ecology Laboratory, Colorado State University

⁴ mark.layer@colostate.edu, Natural Resource Ecology Laboratory, Colorado State University

⁵ keith.paustian@colostate.edu, Dept. of Soil and Crop Sciences, Natural Resource Ecology Laboratory, Colorado State University

Abstract: Conservation planners must assess a range of environmental, agronomic and economic impacts of implementing conservation practices on farms. While environmental impacts such as soil erosion control, improved soil quality, reduced nonpoint source pollution and a number of other site-specific benefits are currently considered, conservation practices may also have significant climate benefits, through carbon sequestration and/or reduction of greenhouse gas (GHG) emissions. If conservation planners wish to incorporate greenhouse gas impacts in their planning process, they will need access to quick, easy-to-use tools to assess greenhouse gas impacts of conservation practices on farms. COMET-Planner (www.comet-planner.com) was developed to provide generalized estimates of GHG impacts of adoption of USDA National Resources Conservation Service (NRCS) conservation practice standards in a simple, web-based platform. Conservation scenarios were modeled in COMET-Farm, a whole farm and ranch carbon and greenhouse gas accounting system based on USDA entity-scale quantification methods, across a range of agricultural management, climate and soil types within Major Land Resource Areas (MLRA). Mean carbon sequestration and emission changes (CO₂, N₂O and CH₄) associated with USDA-NRCS conservation practice adoption were estimated by MLRA. Results are provided to users via the web interface and a detailed methods report.

Keywords: conservation; carbon sequestration; greenhouse gases; decision support.