



DESTINATION STARTUP

Soil Metrics

One-Sentence Summary of What You Do: Soil Metrics provides computation modeling for greenhouse gas emissions and sequestration in croplands and rangelands enabling farmers to earn soil carbon credits through the adoption of conservation practices.

Affiliated Institution: Colorado State University

Have you formed a company yet? Yes

Funding/Financing: Grant Funding, Angel Funding (including Self or Friends/Family)

Please describe your company and the problem you are trying to solve: Soil Metrics' Greenhouse Gas Inventory Tool (GGIT) is an essential element to enable the soil carbon economy. Although direct soil measurements represent the ideal, the scale and complexity of routine on-farm field measurements is not practical. We provide a quantitative model that reports greenhouse gas values for soil carbon, nitrous oxide and methane in farming, livestock and forestry operations. These results are available at the acre or herd level of resolution. Crops and livestock that carry a carbon-friendly certification in the future will demand more value from the marketplace. Regardless of certification schemes, there is no doubt land users will want to make informed decisions before investing in equipment or practices to increase soil carbon. Also, financial instruments and carbon marketplaces will need a method of quantifying and projecting soil carbon stocks that is faster, less expensive and less complex than direct field measurements. Finally, the demand is growing from consumers' desire to address climate change with their purchasing power. Today our technology serves Nori, a soil carbon credit issuing platform who uses our model results to produce carbon credits for farmers. In this function, we are producing the values for how much carbon is being sequestered and therefore are responsible for translating on-farm practices into financial instruments. We also provide the modeling for the Soil and Water Outcomes Fund, which is backed by Cargill, the Walton Foundation and others. Additionally, we are providing assessments to large consumer packaged goods companies to enable a new generation of low/no-carbon foods.

What is/was your go-to-market strategy? The GGIT creates financial value through the production of carbon credits or low carbon commodities and creates business intelligence for consultants, agricultural input providers, farm service groups and food manufacturers who wish to participate in the soil carbon marketplace. We have split this value creation into two groups: 1) the market maker function and 2) products and services. A recent 2018 study produced for the Noble Research Institute calculates the value of soil carbon credits to be \$5.2 billion with the Corn Belt, Northern Plains and Lake States constituting two-thirds of this supply. The GGIT is the tool that extracts this value by creating a baseline value for "business as usual" and a conservation scenario value in which



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practices such as no-till, cover cropping or others are adopted. The difference between the baseline and conservation values flows into an actuarial like system to produce the financial instrument: a carbon credit. In this mode of function, the GGIT is quantifying the invisible value of soil carbon. The second function is answering questions around this market maker function. What's the return on investment for adopting practice X, Y or Z? Where can we source the lowest carbon oats? Where would this new low carbon fertilizer make the most impact? These questions allow participants to build the type of business intelligence needed not only to simply engage with the soil carbon economy, but to serve their business goals. This "what if" function compliments the market making assessment function.

How will/do you generate revenue? Soil Metrics generates revenue through a SaaS product, custom model creation and consulting services. The GGIT is offered via SaaS subscription along with consumption based modeling fees. This provides an API interface to the GGIT for large scale modeling required by our customers like Nori and Sustainable Environmental Consultants. Scaling this platform will require development work to translate the licensed materials from Colorado State University into a commercial platform that meets the broader market needs of usability and interface. We also produce custom variants on our core modeling platform for use by credit issuers to comply with soil carbon registries in the United States and around the world. Soil Metrics' co-founders are globally recognized experts in greenhouse gas modeling of soils and the models we produce are highly regarded. Creation of custom models generates development revenue and the operation of these models is treated like the GGIT, but at significantly higher premiums. Finally, Soil Metrics provides consulting services to a wide range of industries including consumer packaged goods, agricultural input providers (e.g. fertilizer, seeds), implement providers (e.g. planters, tractors), environmental consulting firms and many other groups interested in quantifying soil greenhouse gases in agriculture. One current project is providing assessments for a new low carbon food that will test the willingness of consumers to use his or her dollar to fight climate change. Soil Metrics used the GGIT tool to provide a grams of CO₂ equivalents per kilogram of grain which results in a premium payment to the farmer.

How will this showcase benefit your company or technology? Soil Metrics is trying to socialize our company amongst investors, partners and potential employees. Currently we are addressing overwhelming customer demand and anticipate raising additional capital in the spring and summer of 2021. Although we've received multiple unsolicited offers for investment, we believe we can generate additional enterprise value prior to a fundraising round. Presenting at Destination Startup will allow us to network in the Front Range investor community and also receive feedback on the pitch. We have not yet set an amount required, but anticipate a raise of \$2 million or more. We are also looking for partners in the region to join Soil Metrics as development partners for new products and services we anticipate launching. Colorado already possesses a vibrant ecosystem services industry and of course agricultural industry. Working with geographically close partners will enable us to move beyond the customer need on paper and provide a minimum viable product for customer evaluation and hopefully development. Companies like Nutrien are already very engaged in soil



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carbon and could provide an important partnership for commercializing new embodiments of our core GGIT technology. Finally, we anticipate needing to hire new team members in 2021 to compliment our anticipated growth. Soil Metrics will need soil scientists, environmental consultants, software developers and other talented individuals necessary to supporting our SaaS product, customer models and consulting services. This opportunity will help Soil Metrics get the word out in our region.

Who are the members of your team and why is this the right team to get the job done?

Soil Metrics was founded by Keith Paustian, Kevin Brown, Mark Easter and Amy Swan of Colorado State University to commercialize the many technologies developed there.

- Dr. Paustian is globally recognized for his work and was the convening author of the 2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories for Agriculture, Forestry and Other Land Use. The IPCC panels were awarded the 2007 Nobel Peace prize alongside Al Gore.
- Drs. Easter and Swan have worked in the Paustian Group for over a decade and are some of the world's leading experts in translating soil science into computational modeling systems.
- Mr. Brown is an accomplished software developer with the Paustian group who transforms the science into scalable software tools. Mr. Brown also operates Axios Software, which is Soil Metric's software development partner. Soil Metrics has already funded over \$60,000 in contract work to commercialize our licensed assets. Mr. Brown and his employees have extensive experience with the underlying software as they produced it at CSU.
- Recently to meet overwhelming demand, Soil Metrics hired Dr. Jenny Soong a talented soil scientist trained at CSU with global experience in soil carbon. Jenny is our subject matter expert and Director of Product.
- Finally, Brad Justice is a serial entrepreneur with experience in biotechnology, agricultural technology and food ingredients. His most recent venture, Blue Prairie Brands, received funding from S2G Ventures, Philip Morris International and other high profile venture investors.