

Case Study

Supporting the Development of Camelina as a Sustainable Renewable Biofuel Feedstock with Earth Observation and Artificial Intelligence

Global Clean Energy is laying the groundwork for a robust camelina seed oil biofuel market. Geospatial analytics and artificial intelligence data processing from EarthDaily Analytics equips them and their camelina subsidiary, Sustainable Oils, with a quantitative framework to help make more informed cultivation and commercialization decisions.

As new renewable diesel production facilities come online to increasingly decarbonize the US transportation sector, the country's largest source of CO2 emissions, established sources of biofuel feedstock are insufficient to meet the growing demand. Montana-based Sustainable Oils, a subsidiary of Global Clean Energy, has identified the unique carbon sequestration capacities and robustness of the non-food crop camelina as a cost-effective solution with the potential to produce over 80 gallons of biofuel per acre per harvest. With over 100 million camelina opportunity acres worldwide and the crop's capacity to be grown on otherwise idle acres, this climate-smart fuel alternative could energize the growing renewable fuels sector, simplify global supply lines for critical commodities including jet fuel as well as renewable diesel, and reinforce domestic

energy supply chains during a period when energy security is a top geopolitical priority. However, successful cultivation of a camelina biofuel feedstock at scale and establishment of a related business ecosystem hinges on making informed agronomic and commercial decisions, the lack of pre-existing data and analytics for which is a major gating factor/hurdle.

To best position camelina as a dynamic and growing part of the renewables marketplace, Global Clean Energy and Sustainable Oils have teamed with EarthDaily Agro, a subsidiary of EarthDaily Analytics, to provide Earth Observation services and value-added analytics to drive cultivation efficiencies, substantiate yield modeling, and effectively mitigate risks.

Client:



Technology Partner:



Technology Deployed:



Location:

United States of America

From Promise to Production – Optimizing Yields and Mitigating Risk at an Industrial Scale

As the world's leading developer of camelina, Global Clean Energy has formed a diverse consortium including Sustainable Oils, ExxonMobil, Bakersfield Renewable Fuels, and EarthDaily Agro with the goal of establishing a more robust biofuels market for camelina, with financial support from the US Department of Agriculture's Climate Solutions Smart Commodities program. Having secured a commitment from ExxonMobil to purchase up to 220 million gallons per year of renewable camelina biodiesel, Global Clean Energy and its consortium partners now face the challenge of not only developing camelina production capacity at sufficient scale to meet that existing need, but doing so in a way that lays the groundwork for the further expansion of camelina cultivation as a biofuel feedstock worldwide.

In order to realize the full potential of camelina as a renewable fuel feedstock, Global Clean Energy and Sustainable Oils will need to define, measure, and validate the climate-smart advantages of camelina in both rotational and winter cover crop production scenario, collecting and analyzing a vast volume of scientific-quality data that will form the basis of actionable guidance for the next phase of camelina expansion. Global Clean Energy and Sustainable Oils will use the USDA Climate Smart Commodities award to better understand the impacts of camelina production in lowering GHG emissions and increasing carbon sequestration with a multitude of growers in five regions across the US.



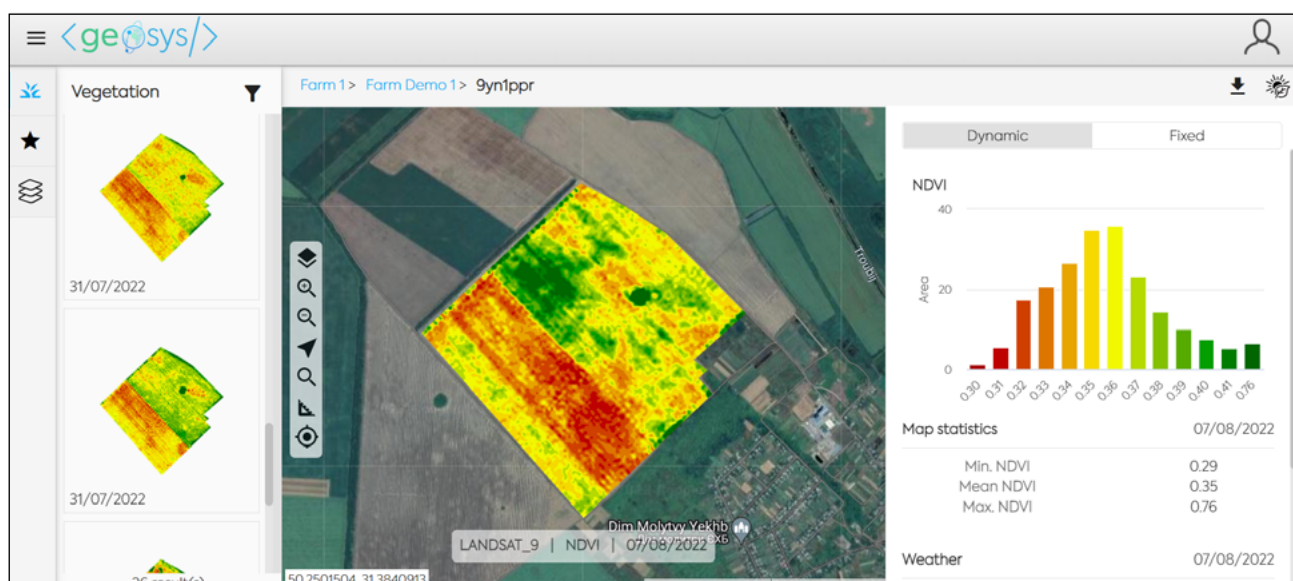


Solution:

Best-in-Class, Scientific-Grade Geospatial Analytics from EarthDaily Agro

By partnering with EarthDaily Agro for a suite of Earth Observation services and value-added analytics, Global Clean Energy and Sustainable Oils have gained access to leading-edge Change Detection, Yield Trend Modelling, Production Suitability Mapping, Carbon Indexing, Crop Cycle Detection, and Vegetation Time Series capabilities. Utilizing EarthDaily Agro's virtual constellation of satellites providing high-frequency, scientific-quality

imaging across both visible and infrared spectra, and then processed using the proprietary, AI-driven capabilities of EarthDaily's EarthPipeline ground segment through the Geosys Platform, the resulting insights will form the basis for both deeply informed guidance to current growers and a well substantiated economic argument and feasibility study for the next phase of camelina adopters.



→ An accurate field variability maps will help you to sample fields, gain time and statistical representativeness but also informs you on the quality of the production at an early stage.

Results:

The First Full Quantitative Framework for Camelina as a Climate-Smart Biofuel Feedstock Crop

With EarthDaily Agro's data and analysis, Global Clean Energy and Sustainable Oils are laying the groundwork for climate-smart camelina biofuel production worldwide. With actionable and dynamic insights into precision farming, ongoing monitoring of crop growth, and uniformly quantified metrics on yields and relative performance across geographies and conditions, Global Clean Energy is now in a position to confidently present camelina as the investable, proven-out, climate-smart biofuel feedstock of today and the future.



Next Up:

Supercharging Analytics Capabilities with the EarthDaily Constellation

Coming soon, EarthDaily Analytics will launch the EarthDaily Constellation, the world's most powerful global change detection and analysis system. In a unique combination of 22 spectral bands, the EarthDaily Constellation will collect scientific-grade and analytics-ready imagery of the Earth's land mass captured every day, at the same time of day, and made available within hours through a cloud-based platform. Once fully operational, the EarthDaily Constellation will dramatically

expand the production of Analytics-Ready Data beyond any other Earth Observation solution in the market, and at a highly competitive price point made possible by both engineering innovations in the Constellation and the highly scalable nature of the Geosys platform's AI-powered data processing and analytics capabilities.

To learn more about our ready-to-use applications or discover how we can create a solution specific to your needs, send us a message to get started:

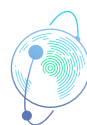
earthdaily.geosys.com/lp/



Contact us

Formerly known as Geosys, EarthDaily Agro uses satellite imaging to provide advanced analytics to mitigate risk and increase efficiencies – leading to more sustainable outcomes for the organizations and people who feed the planet.

Any questions?
Our experts are happy to help.



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