

Modeling a realistic supply chain for bio-based jet fuel

May 8 2023, by Stephanie Seay



Carinata, pictured in full bloom at a producer's field in Georgia, is a winter cover crop of interest as a feedstock for sustainable aviation fuel. Credit: Southeast Partnership for Advanced Renewables from Carinata

Oak Ridge National Laboratory scientists led the development of a supply chain model revealing the optimal places to site farms,

biorefineries, pipelines and other infrastructure for sustainable aviation fuel production.

The project focused on *carinata*, a hardy, oil-rich plant targeted as a winter bioenergy crop in Georgia. For their study published in *Biofuels, Bioproducts and Biorefining*, scientists used [geographical data](#) to model facilities to grow, harvest, store, process and deliver *carinata*-based fuel at the lowest cost and carbon intensity.

"Our model is unique in capturing the fuel's life-cycle carbon footprint," said ORNL's Kazi Ullah. "It can be used to model the [supply chain](#) for other bioenergy crops that may qualify for new sustainable aviation fuel incentives."

"If you can continue to grow bioenergy crops in the winter, you not only get more [feedstock](#), you also get more carbon out of the atmosphere and into the soil," said ORNL's John Field. "This model takes all that into account."

More information: Kazi Masel Ullah et al, Designing a GIS-based supply chain for producing *carinata*-based sustainable aviation fuel in Georgia, USA, *Biofuels, Bioproducts and Biorefining* (2023). [DOI: 10.1002/bbb.2483](#)

Provided by Oak Ridge National Laboratory

Citation: Modeling a realistic supply chain for bio-based jet fuel (2023, May 8) retrieved 17 April 2024 from <https://techxplore.com/news/2023-05-realistic-chain-bio-based-jet-fuel.html>

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