



A Note from the Executive Director

This [CAAFI Quarterly](#) newsletter describes the CAAFI activities and events that occurred July through September 2020. In this issue, we share industry updates and CAAFI team accomplishments. We would also like to take this opportunity to again make two requests regarding high-quality images. 1) We ask that you share any high-quality images you have related to SAF with captions and sources, so we can start building a repository of such images to be used by us and available to our members and 2) Please review the [Members page on caafi.org](#) and provide us with a high-quality image of your organization's logo if it is not already there. I also want to make sure you are aware of the following upcoming items:

- Clean Air Task Force working meetings, 09-11 Nov (Csonka participating)
- IATA Fuel Forum, 10-12 Nov, Virtual
- IATA SAF Symposium, 12-13 Nov, Virtual
- Global Bioeconomy Summit, 16-20 Nov, Virtual
- DOE/PNNL/CAAFI Workshop on HTL development applicable to SAF, 17-19 Nov
- ICAO Fuels Task Group, 16-20 Nov, Virtual (multiple CAAFI SG members participating)
- 2nd Global Biofuels Conference, 17-18 Nov, Virtual (Tindal participating)
- ARGUS Biofuels Live, 17-19 Nov
- Malta Aviation Conference & Expo, 18-20 Nov (Csonka participating)
- German Aero-Days, 24-26 Nov, Berlin
- ASTM D02 Winter Meeting, Sub-Committee J activities 07-16 Dec, Virtual
- Jacobsen Conference, May 2021, Denver, CO
- Biorenewable Deployment Consortia, May 2021, Denver, CO
- CAAFI's Biennial General Meeting (CBGM), June 2-4, 2021, Washington, DC

We appreciate questions, comments, and suggestions at any time. Enjoy!

Steve Csonka and the CAAFI Team

Quick Links

⇒ Check out "[What's New](#)" for a brief review of noteworthy SAF news from the last quarter, including funding opportunities.

⇒ Go to "[Ask CAAFI](#)", a segment that highlights and explains relevant topics that impact the SAF/SAJF industry.

⇒ See "[CAAFI Team Highlights](#)" for a snapshot of CAAFI work teams' projects and progress last quarter.

⇒ Jump to "[SAF State and Regional Efforts](#)" for a summary of select deployment projects around the United States.

What's New?

[Business Aviation's First Sustainability Summit, 14-15 September: Summary](#)

[A new Business Aviation SAF Guide was released and CAAFI started a Blog](#)

[DOE Funded New Bioenergy Crop Research](#)

[Air Transat and SAF+ Consortium Signed Canada's First SAF Offtake Agreement](#)

[Aerion and Carbon Engineering Worked to Develop CO2-based Fuel](#)

[Amazon Air Committed to 12-month SAF Buying Contract with Shell Aviation](#)

[Neste Became First Company to Deliver Sustainable Aviation Fuel via Pipeline](#)

[LanzaTech Launched LanzaJet, a SAF Company](#)

[Dr. James Hileman \(FAA\) Presented a CAAFI Webinar in July, ICAO CORSIA and Alternative Jet Fuels](#)

Additional information on these news items and additional funding opportunities can be found at [caafi.org](#).

Ask CAAFI

Question: Recently, we have heard there is some concern, particularly among some in the business aviation community, that SAF has a greater potential for microbial contamination than conventional jet fuel. Is this a valid concern?

Answer: No. The susceptibility of SAF to microbial contamination has been investigated by multiple entities and found not to be an issue. An example of such work was the research in 2012 under the European Alpha Bird project¹ (the report is available on caafi.org). The investigation compared a conventional MEROX treated jet fuel with two neat, unblended SAFs, and two blended SAFs. The results “gave clear evidence that none of the ALFA-BIRD [SAF] fuels were as susceptible to microbial growth as conventional MEROX treated Jet A-1”. The report also went on to state that “The evidence provided by examination of filters is particularly convincing as it clearly shows more microbial biomass developed in MEROX treated Jet A-1 microcosms. This assessment is also pertinent because it will directly relate to the propensity of microbial growth to cause engine fuel filter clogging and general fuel system fouling”. This was not unexpected, because MEROX treated fuels also are typically more susceptible to microbial contamination than hydrotreated conventional jet fuels, which compositionally are more similar to SAFs. In addition, a recent study conducted by the Coordinating Research Council (CRC)² (available [here](#)), concluded that water solubility is higher in jet fuels containing aromatic hydrocarbons. This will result in more free water to support microbial growth. But many SAFs are aromatic free and therefore produce less free water to support microbial growth. There are various other reports available from over the last decade that also outline the attributes of SAFs (e.g. increased isoparaffinic content) that make them less conducive to supporting microbial growth than conventional jet.

¹ “Investigation of Susceptibility of Alternative Jet Fuels to Microbiological Growth; ALFA-BIRD Project”, ECHA Microbiology Limited, ECHA Ref.: 17153, 07 June 2012

Some of the concern on this topic may be driven by the lack of knowledge about what SAF is or isn’t, and people hearing about such issues with other non-drop-in fuel replacements in the ground transport market. These issues do not apply to the pure hydrocarbon compositions of SAF, which are drop-in, direct replacements of the pure hydrocarbon fuel molecules comprising conventional jet.

CAAFI Team Highlights

Business —

Activities include:

- ⇒ Facilitating opportunities for airline and other end user engagement, identifying supply logistics needs and informing contract processes. Stay tuned for additional announcements in the coming quarters.
- ⇒ Engaging with several firms approaching commercialization, as well as several new producer entrants. CAAFI continues to introduce potential new SAF producers to both fuel suppliers and end users across the civil aviation space.
- ⇒ Continued engagement with the several USDA NIFA-AFRI CAPS with whom CAAFI has strategic engagement.
 - Southeast Partnership for Advanced Renewables from Carinata ([SPARC](#))
 - Sustainable Bioeconomy for Arid Regions ([SBAR](#)) focused on the production of guayule bagasse as a feedstock for SAF production
 - Integrated Pennycress Research Enabling Farm & Energy Resilience ([IPREFER](#)).
- ⇒ Engagement with the OEM and BizAv communities on industry messaging. Responding to inquiries from policy makers and other third parties interested in fostering SAF development.

Certification/Qualification —

The detailed work of the Cert/Qual team typically happens at the two annual meetings of [ASTM D02](#), the spring meeting of the [Aviation Committee of the](#)

² “ALTERNATIVE AVIATION FUELS—WATER SOLUBILITY & DEMULSIBILITY IMPACT”, CRC Project No. AV-19-14, April 2017

[Coordinating Research Council](#), various OEM meetings in the US and UK, and adjacent to the activities of ASCENT, and at venues like the National Jet Fuel Combustion Program.

D4054 updates include:

- ⇒ Version D7566-20 now includes seven annexes with the recent additions of ARA CHJ (Annex A6) and IHI's HC-HEFA (Annex A7). Also, version D1655-20 now includes co-processing provisions at 5% volume for both lipids and FT crude.
- ⇒ Shell IH2: The draft Phase 1 research report was submitted to the OEM review team on June 2. In recognition of the working constraints imposed by the pandemic, an extended period was to October 31 was specified.
- ⇒ Swedish Biofuels has re-initiated their ASTM project and is finalizing their Phase 1 research report.
- ⇒ Global BioEnergies has established an ASTM task group and has been providing data and updates to the OEM Review Team.
- ⇒ Other companies that have initiated contact with the ASTM team and have shared preliminary data include REVO International, CSIR – Indian Institute of Petroleum, and OMV Downstream GmbH.

Sustainability —

Most of the effort and focus of the Sustainability team has been to support deliberations of ICAO and its work on CORSIA.

- ⇒ Continued to participate in the LCA, sustainability and alternative fuels tracking work in the ICAO CAEP Fuels Task Group (FTG), Working Group 4 (CORSIA), and Sustainability Certification Scheme Evaluation Group (SCSEG).

R&D —

- ⇒ Continued discussing engaging companies with emerging alternative jet fuel pathways.
- ⇒ Continued developing enhanced prescreening guidance documents.
- ⇒ Began working on a document describing the path to using up to 100% synthetic fuels.

SAF State and Regional Efforts

◇ Connecticut

- The conversion of the South Hartford-based Materials Innovation and Recycling Authority (MIRA) facility to a jet fuel processing facility remains an attractive opportunity. CAAFI continues to engage with Praxair, Linde, Pratt & Whitney and state government contacts. A proposal was made via presentations to state authorities. The goal is for events to converge toward the end of this year when Fulcrum's MSW-to-liquid facility is commissioned.
- Contact has been initiated with DOE's Idaho National Labs in anticipation of an MSW-to-liquid focused initiative in the DOE EERE \$90 million plus broad agency announcement. It is expected that the optimization of waste separation and stream management will be a major focus. Central CT will be a key case study for the expected proposal.

◇ Florida

- CAAFI continues engagement as a co-founder of the Florida Coalition for Sustainable Agriculture, Water and Energy (FCSAWE). The core FCSAWE members include the Florida Department of Agriculture and Community Services (FDACS), University of South Florida (USF), University of Florida (UF), and subject matter experts on beets, sorghum, pongamia, carinata, elephant grass, and eucalyptus. The group continued working toward establishing a set of focused near-term objectives. CAAFI and FCSAWE achieved significant progress during the quarter.
- A partnership of UF and Argonne National Labs with CAAFI support for market transformation planning was announced as a recipient of \$3.92 million multi-year award under DOE's BETO Topic Area 4 – Bio-Restore to execute a project that will develop energy cane in the region surrounding Lake Okeechobee. It is

expected that the project will be under contract and begin work during the first quarter of 2021 with CAAFI launching the market transformation activity.

- The SPARC supply chain team, which is led by CAAFI, is progressing on two fronts.
 - Initial resilience modeling of the carinata supply chain using FTOT was completed by the USF and modeling of the first and last mile is underway.
 - An effort to establish a beneficial rotation between carinata and sorghum for application in both Georgia and Alabama has been initiated. The emergence of interest from Nuseed in Richardson Seeds' sorghum research and a potential sorghum animal feed market was confirmed.

CAAFI / GSR multi-year collaboration with USDA and the Vermont.

If you are aware of other scenarios that could be appropriate for a regional development effort, please let us know. For more information, see [CAAFI's State Initiatives](#) page.

Please check the [CAAFI website](#) on a regular basis for more detail on pending activities.

Email peter.herzig@dot.gov with any ideas for CAAFI Quarterly items of interest, caafi.org news suggestions, or inquiries about subscription to the CAAFI Membership group.

◇ Southeast Regional ASCENT Support

- Regional efforts to support woody biomass based SAF supply chains continued in the quarter. To this end the University of Tennessee's Institute of Agriculture (UTIA) and CAAFI formed a joint collaboration in the Southeast (UTCASE) and completed an executive summary of a presentation to prospective processors and service providers to the industry. The intent is to utilize UTIA's extensive tool suite to aide new entities in their early business development efforts. The expensive UTIA tool suite has largely been used for policy planning to date. A list of perspective customers was prepared by CAAFI leadership and initial introductions were made.

◇ Vermont

- GSR technologies has been selected for two Value Added Producer Grants (VAPG). The first is a planning grant to adapt its technology to a new dairy farm site in Franklin County. The second is an advanced phase grant to initiate manufacturing operations for GSR's organic fertilizer co-product stream and is a direct result of the