

## A Note from the Executive Director

Welcome to the updated CAAFI Quarterly Newsletter describing activities and events that occurred from January to March 2017.

This issue marks the release of our new newsletter format in which we will answer relevant questions related to sustainable alternative jet fuel (SAJF) and periodically feature case studies on successes and challenges in the industry. These new features were added to supplement the existing quarterly updates on the state of the industry and CAAFI work teams. In this issue, we initiate an intended ongoing discussion around feedstocks: what is currently being used for commercial SAJF production, and which feedstocks are on CAAFI's radar for future commercial use and why.

We appreciate comments and suggestions at any time from readers. Enjoy!

Steve Csonka

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## Quick Links

- ⇒ Check out "[What's New](#)" for a brief review of noteworthy SAJF news from the last quarter, including funding opportunities.
- ⇒ Go to "[Ask CAAFI](#)", new segment that highlights and explains relevant topics that impact the SAJF industry, to read about feedstocks on CAAFI's radar.
- ⇒ See "[CAAFI Team Highlights](#)" for a snapshot of CAAFI work teams' projects and progress last quarter.
- ⇒ Jump to "[SAJF Deployment Projects](#)" for a summary of select deployment projects around the US.
- ⇒ View "[Upcoming Items of Special Note](#)" for pending future activities and events.

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## What's New?

*A brief review of noteworthy SAJF news from last quarter.*

Numerous CAAFI members and partners were voted to [Biofuel Digest's Top 100 People](#) in the Advanced Bioeconomy List. See the full list [here](#).

ICAO hosted an [Alternative Fuels Seminar in Montreal](#) to

discuss the current state of SAJF deployment, sustainability criteria, life-cycle analysis methodologies, and the regulatory frameworks that support the deployment of SAJF.

[DOE and USDA released a report](#) that used the estimated biomass production numbers laid out in the 2016 Billion-Ton report to illustrate that production of at least 1 billion tons annually within the next 15 years offers the U.S. many economic and environmental benefits.

## Funding Opportunities:

- ⇒ [Advanced Drop-in Biofuels Production Projects](#)
- ⇒ [Biomass Research & Development](#)
- ⇒ [Integrated Biorefinery Optimization](#)
- ⇒ [Algal-based Biofuels](#)
- ⇒ [Demo- & Pilot-scale Projects for Biofuels, Bioproducts, & Biopower](#)

*Additional information on these news items can be found at [caafi.org](#).*

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## Ask CAAFI

*A new segment that highlights and explains relevant topics that impact the SAJF industry.*

**Question:** What feedstocks are currently used for commercial production of SAJF? What feedstocks are on CAAFI's radar for the future?

**Answer:** CAAFI is feedstock and production process neutral, meaning that we do not favor any one feedstock or approved production process over another. ASTM approved production processes for SAJF can use various kinds of feedstocks from fats, oils, and greases (FOGs) to carbohydrates/sugars to lignocellulosics to industrial wastes. Currently, inedible tallow is the primary feedstock involved in the production of commercial SAJF in the United States (AltAir Fuels), but dedicated oilseed crops and other feedstocks such as forest residuals are anticipated to be in use soon.

CAAFI is currently in discussions with numerous feedstock producers regarding their future plans and current projects.

For a full list of SAJF feedstocks on CAAFI's radar, listed by feedstock category (e.g., FOGs, sugars, wastes), refer to the [full list](#) on the CAAFI website. Notice something missing? *We welcome input at any time on our current feedstock list.* CAAFI evaluates feedstock maturity using a series of checklists in its [Feedstock Readiness Level \(FSRL\) Tool](#), allowing producers to assess feedstocks for market readiness based on the status of their production, market, program support and regulatory compliance, and linkage to an approved conversion process.

The [Farm to Fly 2.0 \(F2F2\) FSRL Evaluations Repository](#) is a collection of FSRL evaluations that are intended to be used for two purposes: first, to enable stakeholders to identify gaps where further research, development or investment may be needed to facilitate maturation of a particular feedstock for a given conversion process, and second, to allow parties interested in developing alternative fuel facilities to understand what feedstocks may be available in the near term in a particular region.

We welcome evaluations from CAAFI members. For more information or to submit an evaluation, contact [Kristin Lewis](#).

For more information on FSRL, see the CAAFI [FSRL paper](#) (A Feedstock Readiness Level Tool to Complement the Aviation Industry Fuel Readiness Level Tool), [FSRL Repository](#), and [State-Level Deployment Projects](#) page.

Check out more detail regarding some high-interest, specific feedstocks in upcoming issues. In too many cases, CAAFI leadership have heard comments about various feedstocks being acceptable or not, from a sustainability perspective, and we think many of those observations are uninformed or out of date.

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## CAAFI Team Highlights

*A snapshot of CAAFI work teams' projects and progress last quarter.*

### Business

- ⇒ Continued to expand work with prospective alternative fuel producers to facilitate opportunities for airline and other end user engagement, identifying supply logistics needs and informing contract processes.
- ⇒ Focused on expanding Business Services support. Amy Carico of A4A is working with CAAFI leadership to define such a team's mission statement. Various expertise for this topic, including private and public participants (e.g. Depts. of Commerce and State) are being brought into the process to develop the mission state-

ment and recommended key goals for CAAFI Steering Group review in the 2<sup>nd</sup> quarter.

- ⇒ CAAFI will host a SOAP-Jet webinar on May 19<sup>th</sup>. John May from Stern Brothers & Co., a U.S. investment bank will present "The Latest De-risking Techniques for Commercial Scale Project Financing in Bio."

### Certification/Qualification

- ⇒ Convened a status review meeting on SAJF research report reviews with original equipment manufacturers (OEMs) on March 20 at the UK AFC meeting in London.
- ⇒ Reviewed a proposed framework for a generic annex with OEMs and determined a path forward to develop a research report.
- ⇒ Presented an overview of the FAA [ASCENT](#)-funded D4054 Clearinghouse at the ICAO Seminar and UK AFC meeting. The D4054 Clearinghouse will provide a "one-stop shop" for testing and data review for candidate AJF producers.
- ⇒ Applied Research Associates' (ARA) is working on responding to OEM questions on their Phase 1 research report and addressing any needs for further Tier 3 and 4 testing of their Catalytic Hydrothermolysis (CHJ) fuel.
- ⇒ The LanzaTech Phase 1 research report for their ATJ-SPK process was submitted to OEMs for review on January 16. Preliminary feedback from the OEMs is very positive regarding revising Annex A5 to add ethanol-derived ATJ to the currently approved isobutanol-derived ATJ.
- ⇒ Virent Synthesized Aromatic Kerosene (SAK) is undergoing Step 2 screening and will be submitted to the OEM review process later this year.
- ⇒ Boeing prepared a second draft of the research report for High Freeze Point HEFA (HFP-HEFA) and it is undergoing Step 2 screening.

### Sustainability

- ⇒ Working to solidify the transition from "Environment Team," which was decided at the 2016 CBGM.
- ⇒ Drafted a revised team mission statement and developing website content, including an expansion of the "[Environmental Sustainability Overview](#)" to include social and economic sustainability.

**R&D**

- ⇒ Continued to engage emerging pathway technologies and companies, holding six information gathering calls with Forge Hydrocarbons, Cool Planet, Shell, UPM, SBI Bioenergies, and Mercurius.
- ⇒ Continued to host SOAP-Jet webinars. On March 24<sup>th</sup>, David Thompson (INL) presented "[Advanced Feed-stock Supply System Development at Idaho National Laboratories](#)."

**SAJF Deployment Projects**

*A summary of select deployment projects around the US.*

**Appalachian Region:**

In January, a meeting was held at Appalachian Regional Commission (ARC) HQ with leadership representatives from ARC, EPA Environmental Justice, DOC NIST, USDA, and CAAFI to discuss future plans. State ARC leaders from KY, GA, and WV were also present. The following efforts commenced during this quarter:

- ◇ **Virginia**—The Commonwealth Center of Advanced Logistics Systems (CCALS) is pursuing projects in southwestern VA. The Center for Natural Capital, with expertise in wood developments in rural VA areas is now working with the CCALS UVA team to develop a concept paper.
- ◇ **Pennsylvania**—Provided the Concept Paper for dairy industry engagement to [ASCENT](#)-funded Penn State University (PSU) for consideration in formalizing an approach to the Dept. of Community and Economic Development and the PA Dept. of Agriculture. The State requested that PSU focus the approach as its partner in State developments.
- ◇ **Georgia**—Developing solutions to improve the sustainability of poultry production is one of several primary interests of CAAFI's work in GA. GA Tech assessed methods to assist poultry farmers in addressing sustainable development given potentially significant water quality issues associated with phosphorus and nitrogen runoff into the Gulf of Mexico.
- ◇ **South Carolina**—CAAFI and partners plan to engage ARC lead of the SC Dept. of Commerce and pledged to make initial contact to establish potential support for efforts to build on SC USDA RBEG outcomes.
- ◇ **West Virginia**—CAAFI initiated communications with Marshall University and WVU regarding modifying, rewriting or changing the concept paper issued in the third quarter.

- ◇ **SE Regional Cooperation**—FAA/CAAFI initiated dialog with UT Knoxville to promote regional cooperation for [ASCENT](#).

**Farm 2 Fly 2.0 (F2F2):**

- ◇ **South Florida**—Completed its one-year Rural Business Development Grant (RBDG) contract. New participants in the final RBDG quarterly meeting (1/12) included FAA, Gevo, Federal Express, and French beet processors Global Bioenergies. The team will pursue a USDA Value Added Producer Grant to develop a commercialization plan for rapid beet processing to produce low-cost sugars and animal feed following recent, successful beet sample testing on citrus processing equipment. This will benefit both fuel process developers and the citrus processing industry. USDA Rural Development and the acting State Director agreed to support the follow-up plan, and a regional cattle feed coop agreed to be project submitter. The RBDG project team has agreed to administer the plan as part of the submittal.

- ◇ **North Florida**—The University of Florida-led SPARC project team applied for a National Institute for Food and Agriculture (NIFA) CAP grant. CAAFI as a member of the team is leading the supply chain development effort, which also includes ARA (conversion and co-products) and Agrisoma (feedstock and animal feed co-product). The SPARC team was selected as one of six finalists from among some 37 proposals. CAAFI is optimistic that this team has a good chance to be selected due to its close ties with industry and customers (U.S. Navy) and their full engagement in the proposal, which requested a plan for aviation supply chain development. CAAFI leadership also participated in the Carinata Summit in Quincy, FL on 3/29.



*"What a robust crop!" - CAAFI's Executive Director, Steve Csonka, in a field of carinata.*

*Carinata Summit, Quincy, FL (Photo Credit: Ed Coppola, ARA)*

- ◇ **Vermont**—Initiated implementation for \$150K Value Added Producer grant to conduct the initial stage of conceptual design for a GSR Solutions heterotrophic/mixotrophic algae process. An additional key development has been the emergence of a potential high protein cattle feed co-product to supplement the existing feedstock and middle distillate fuel focus. Supply chain development is a key element in this pending VAPG proposal. The positive support of the dairy industry, specifically dairy co-ops, led by Newtrient, is a key factor favoring these developments.
  - ◇ **Maryland/Chesapeake Bay**—Discussions were held with Maryland's new State environmental lead (former USAF official and longtime sustainable biofuels advocate) William C. Anderson, regarding interest in the potential to use cover crops and co-products (e.g. biochar) to help support state water quality improvement efforts.
2. Miscellaneous events hosted by CAAFI collaborators for your advance planning:
    - ⇒ The DOE Bioeconomy 2017 conference is scheduled for 11-12 July in Washington DC.
    - ⇒ The BIO World Congress on Industrial Biotechnology is scheduled for 23-26 July in Montreal.

*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.*

*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.*

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### **Upcoming items of special note:**

Please check the CAAFI website on a regular basis for more detail on pending activities.

1. The ATIP Foundation announces three regional forums focused on sustainable alternative jet fuel and oilseeds:

The ATIP Foundation is orchestrating three regional forums to inform and receive input from stakeholders on research conducted during the past five years by USDA and their land-grant partners, relative to crops (principally Brassica spp.) that can be utilized to produce this biofuel. The goal of the forums is to facilitate commercialization of these research outcomes, thereby enhancing job opportunities along the supply chain from crop to jet fuel. The Foundation is arranging for these forums to be convened in Richland, WA (June 6); Fargo, ND (June 13); and Wichita, KS (July 11).

A report on these forums will be submitted to USDA National Institute for Food and Agriculture by July 31, 2017. If you have a clear interest and desire to attend, let ATIP know!

To receive an invitation to one of the regional forums (space permitting), please contact Dr. Richard Brenner, Director, ATIP Foundation, at RBrenner@atipfoundation.com or by calling (410) 980-1943.