**Meeting Topic:** Brown grease market analysis

**Date:** January 26, 2017

**Attendees:**

Alex Badgett

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Grease Assessment: trap grease & grease in sewage system-so for recovery purposes there isn’t really the technology to recover grease from sewage system, only that from grease traps.

Shaine is still somewhat involved with the trap grease market as a consultant

There is a price recovery site for brown grease (Jacobsons)-note there is no variation over time with that model, but it is the only one available

Overall, everything about the trap grease industry is below the radar

-Getting good data out of the industry is very difficult-people not very willing to share

-People don’t report the supply for brown grease

Anelia: How do we start thinking about a cost for brown grease feedstock? Competitors? Availability, etc?

Shaine: Biodiesel people already use brown grease. Most plants have dual technology (acidification followed by trans esterification)

-People have been using brown grease for biodiesel sine the 60s

-Took till 2010 for industry to figure out high FFA feedstocks. Therefore, there is a market for brown grease

1. Put in small reactor for acidification to reduce FFA to ~4%

2. Remove water, refine, etc.

3. Blend w/other biofuels, other biodiesels

There are technical reasons for not putting lots of BG into your biodiesel plant. For those reasons, most plants never use much of it.

Most facilities that buy BG don’t use more than 5-10% in their process.

-On renewable diesel side, people use BG with different characteristics/technology.

Cost Analysis:

Pretreating, storing, collecting it

-problem is the industry is very diverse-characteristics of feedstock that some people need to address and some don’t (e.g. sulfur in BG is bad for diesel production, while another group wouldn’t care about high ppm of metals)

-Some ignore b/c of high FFA, renewable diesel industry doesn’t really care about this

Biodiesel industry doesn’t care about metals, BG has some metals and it moves through the refining process without problem. But on the renewable side they have criteria about having low metals content. Trap grease has thousands (ppm) of metals in it straight from the trap.

So overall, depending on who you are trying to sell the grease to the metals content can play either a big role or minimal role

*All of these above features complicate the cost structure*

40% of collected brown grease goes to rendering company (NC) but the renderers will deny it. Some of the yellow grease numbers therefore include brown grease.

There is some industry out there (trap grease collection industry)

-Sewage pumpers collect the grease

Producers: place where trap is located

Collectors: pump the trap, take it to the grease disposal site (pumpers)

Two things that happen: they either skim it and walk away (don’t get sediments which will eventually build up and reduce trap efficiency) OR collect it all and powerwash it out.

There are pumping companies that are integrated-separate water, grease, sediments and send them to the proper disposal stream

Companies use various techniques to separate the trap grease: frac tank or hydrocyclone-either goes straight into holding tank or straight into hydrocyclone

Typically the pumpers don’t have much obligation or interest in separating the grease-no scale, technology, financial incentive, etc.

The cleaning typically has to happen later on if the pumpers don’t do it on site- so this affects the cost structure.

Samples of the grease look very different depending on who/when/what point in collection cycle you consider it at. Trap grease from dewatered effluent is 90% FFA. –Therefore brown grease is a vague name, as it could be actual trap grease or it could be blended with yellow or animal fats or whatever else

Testing for metals will be part of the cost structure for PNNL

Lots of people in the industry are difficult to talk to and don’t share their data.

Anelia: is point of production the restaurants or disposal sites?

Shaine: 2 cents per gallon? = transportation costs grease costs more as it tends to form a gel (e.g. poultry fat)

When exporting yellow grease, it can be pretty much whatever (could include trap grease).

Anelia: For BG, how do we assign a price tag like yellow grease?

Shaine: Jacobsons assigns a price of 15 cents per pound, changes as low as 7 cents per pound. Talk to Jacobsons guys and ask them if they collect their info for trucks entering or leaving rendering plant? Renders de-water, filter it, blend it with other greases. Trap grease going in, brown grease coming out.

There are people who collect trap grease and blend it with yellow to compete with the rendering companies.

The problem with supply curves is that they cant be used until the TG is treated (dewatered, sediment screening)

So we have to figure out the quality specification for the product we are evaluating.

Shaine is almost positive the jacobsons is the price leaving from the renderers.

Everyone prices it at jacobsons, people can collect it at six cents and sell it at 15 cents/lb.

The Jacobson (<https://www.thejacobsen.com>) number is a national one ☹

Prices for grease relate to the vegetable oil prices, prices also change based on behavior/creation/expiration of subsidies. If subsidy disappears, the prices for the material go down by around 7c/lb. Demand has a large play in the costs, not sure how to factor it in. At a high level you could elevate it so high that those things disappear. The brown grease is a resource that is already being used in multiple ways at some states but in other states they have a hard time getting rid of it. Restaurant:500-1000 gallons effluent from a trap per month, 2% of that is grease.

In a city of less than 50,000 ppl they wont separate the grease from the effluent at all, therefore scale is a large issue. They wont look at grease separation unless it’s a large city center. Regional transportation issues kick in since there is 2% grease and lots of water. You would need to dewater the grease to make regional transport economical. (could do it in Denver area but not up in the mountains, for example)

These feedstocks are so dispersed, looking at small scale uses and blending opportunities.

North Carolina regional supply curve report: <http://www.biofuels.coop/wp-content/uploads/2011/02/ECO-Collections-trap-grease-feasibility.pdf>

Once it is down to 95% grease, it is then a product, not before it has been dewatered.

Price: everyone uses Jacobsens, note that since it is a waste and because people sell it as other things (yellow grease) the price doesn’t change much

If you take the FOG from the trap effluent it has some benefit to the person who pumped it, as they are then able to dispose of some of the wastewater/waste materials easier.

Check with EPA people, see if they have an idea about FOGs as it relates to wastewater quality

Can consider trap waste grease assessment and NC report to get numbers together, however that doesn’t provide any accountability for geographical variances

Penelas county, Florida has been collecting trap grease <http://www.pinellascounty.org/utilities/pdf/fogmgtpractice53006.pdf>

To commoditize the grease, needs to be dewatered and de-smelled.

Overall: very detailed, complicated system.

Shaine: Consider, come back with specific questions. Best for after 4PM East Coast time.

From the renderers viewpoint, everything that isn’t produced meat is waste. This makes it difficult to create models/cost curves for BG.