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Milk Disposal in Anaerobic Digesters: Some Things to Think About

Milk across the country is being disposed as supply chains are disrupted by the economic shutdown in response to COVID-19. While milk and food production are exempt from various “Safer at Home” orders, many of the institutions and restaurants to which significant food sales occur are not, resulting in mounting supplies of milk produced 24/7. Bossie has no spigot.

National, regional and state trade associations have called for immediate action by the U.S. Department of Agriculture (USDA) and Congress to address the issue. Meanwhile regulators are providing farmers with guidance as to the safest way to dispose of milk if confronted with that circumstance. There can be no greater disappointment for a farmer than disposing of the very product she has worked her entire life to produce.

One of the disposal options include disposing of milk via anaerobic digesters, be they on-site, at food processors or other “community digester” locations. Indeed, milk contains potential energy content far exceeding that of manure – the usual substrate that feeds digesters. As a result, the disposed-of milk has great potential to create value in the form of renewable natural gas, which in turn can generate revenue from power production or various environmental subsidies, including California’s Low Carbon Fuel Standard (LCFS) or the Federal Renewable Fuel Standard (RFS).

But not so fast. Before putting milk in digesters, farmers need to think through a few important considerations. These include:

- 1. Putting milk into the digester substrate mix, and taking it out again down the road could cause big technical issues:** Digesters substrates must be carefully controlled in order to maintain the microorganism balance in the digester. Introducing too much high-energy milk can cause microorganism die-off, or imbalance in the microorganism mix. If

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those things are avoided, other problems can result when milk is removed from the substrate stream. Put simply, the ramp up and ramp down of milk introduction into the digester needs to be managed carefully and scientifically.

2. **If your digester is producing gas to generate RFS credits, putting milk in the digester will change the type and value of those credits.** Gas produced exclusively from manure generates credits known as “D3 RINS” under the RFS Program. But, when you add food sources in addition to manure, the digester loses its D3 RINS qualification, and may be eligible only for “D5 RINS” under the RFS, which are generally only about half as valuable as D5 RINs at today’s prices. Impact on RINS needs to be considered. For now, the U.S. Environmental Protection Agency (EPA) has taken the position that qualification for D3 RINS is solely based on the cellulosic content of the digester feedstock. However, EPA is expected shortly to release guidance for industry regarding enforcement of this distinction during the ongoing milk disposal crisis.

3. **If your digester is producing gas to generate LCFS credits, putting milk in the digester will require certification of a new “pathway” by the California Air Resources Board (CARB).** Every farm that is certified by CARB to produce LCFS credits is certified for a specific process using specific substrates – in most cases purely manure. The value of those credits is based on the Carbon Intensity (CI) score of the substrate going into the digester. While the process to determine it is complex and quantitative, it is safe to say that introducing milk into the digester will change the farm’s CI score, and that in turn requires the farm to get a new LCFS credit pathway certified by CARB that assigns a new CI score.

4. **If you are using your digester to produce electric power for a utility that is purchasing the power, there’s probably no downside to using milk in the digester.** Unless something in your contract with the utility requires you to use only manure in the digester, you should be able to put milk in the digester without any consequences to your deal with the utility. You should review your PPA before doing so, however.

None of these factors are necessarily showstoppers. Technical issues can be overcome with the proper engineering guidance. LCFS issues can be overcome with competent creation of new pathways, and gas can be stored through virtual storage contracts while the certifications are pending. Reduction from D3 RIN to D5 RIN status under the RFS may well be valuable to the farmer if the amount of revenue reduction is exceeded by the avoided cost of disposal alternatives.

The point is to investigate these issues before you dispose in a digester. Consult with us if you have questions.

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