

How Fluid Quip Technologies (FQT) are helping revitalise and reinvigorate the bio-economy post-COVID-19.

There's an old Chinese proverb that says, "the best time to plant a tree was 20 years ago. The second-best time is now." In short, whilst you can't go back in time to make a change, if you want growth and success, today is the best time to act.

By Luke Upton

This came into my mind in a recent conversation with **Neal Jakel**, Partner/Strategy & Technology for **Fluid Quip Technologies (FQT)**, a leader in biofuel and biochemical technology, engineering and process solutions. In our wide-ranging talk, it became clear that the period of sudden and enforced economic change brought about by the COVID-19 pandemic and resulting lockdown has shaken up existing models, and whilst threatening some, it offers opportunities to others. The bioeconomy is no different to any other sector in facing these economic headwinds, and today we assess the current challenges that we face, and see how a new approach to some existing problems can offer major rewards.

In the months after the COVID-19 crisis hit, the oil price dipped precipitously, the cost of gasoline fell in response to a crash in demand and

ethanol producers were left with a higher-price product in their tanks but a greatly shrunken pool of customers. As a result of this many ethanol plants significantly cut back production or stopped producing altogether. Whilst at the time of writing (June 2020), demand is beginning to increase and prices slowly creep back up, the numbers for the ethanol industry still look very challenging.

For Neal and the team at Fluid Quip Technologies, the difficulties that ethanol has endured since March have shone a light on issues far wider than just COVID-19: "What COVID-19 has done is make clear to the biofuels industry that just making ethanol is no longer a sustainable business. Most of its producers are relying on a break-even model and that is no longer going to work. Margins were small anyway, even pre-pandemic and this break in demand has exposed this further. A

“
Current supplies are not cheap, we know that to feed new green chemical companies and their products, 70-80% of the cost is found in the carbohydrate raw material cost.”

change has to be made. Yes, it's a conservative industry and there's not a lot of first-movers. Its period of success, around 2004/5 was built on legislation driven revenue, but that's no longer there. Now it is time to adapt, accelerate change and move towards a market driven revenue model."

At that heart of what Neal sees as a new template for ethanol is FQT's extensive experience in developing technologies that enhance the existing base corn-to-ethanol dry grind process and creates fresh revenue streams through new and novel alternative co-products. By diversifying ethanol facilities, it insulates them from energy market fluctuations (and unforeseen events like COVID-19) and brings new high-value protein co-products into their revenue stream.

To give just one recent example of partnership, Neal highlights the news from April of this year that their technology has been

installed at the Green Plains Shenandoah, ethanol facility in Iowa. Last year the Green Plains organisation made the decision to further diversify their ethanol facilities, and that has led to the FQT Maximum Stillage Co-Products (MSC) protein separation system now becoming operational on the site. Along with the Green Plains MSC facility, Flint Hills Resources is currently commissioning their second full scale MSC system in Shell Rock, Iowa and two more MSC systems are under construction in the US. Bringing the total MSC high quality protein production volume to more than 400,000 MT per annum moving forward.

For plants that run the MSC protein system, they gain a highly profitable 50% protein product, which is sold as high value alternative feed ingredient. Whilst this decision was made pre-COVID-19 it is now proving particularly well timed; "A 15 to 20 cent per gallon margin uplift for any plant, is a stay-in-business advantage for any plant right now," says Neal.

"We are excited to implement this technology across our platform and collaborate with our biotechnology partners to further increase margins and add value to the products we produce," said Todd Becker, president and chief executive officer of Green Plains on the announcement of the partnership becoming operational.

Whilst FQT have their base in Iowa, and a practical, hands-on attitude rooted in delivering projects in the rural heartlands of the USA, they have a global presence and outlook with active clients in Canada, South American and Europe and geography is certainly no



barrier to their technologies delivering results.

"The potential of the kernel of grain has not been fully realised. This alone offers huge opportunity but becomes doubly pressing when there is a global shortfall, particularly in Europe, in the supply of carbohydrates and proteins to industry," adds Neal.

COVID-19 has added further to this shortage. Copa-Cogeca, the influential European umbrella organisations that represents farmers have urged the European Commission to take action to deal with the growing risk of imbalance in the EU protein plant market and its biofuel supply chains. They have publicly expressed concerns about the long-term consequences of the pandemic on the vegetable oil, biodiesel, ethanol and protein co-products which includes oilseed meals and distillers dried grains with solubles (DDGS). They see the industry as entering a period of increased instability as a result of both lower demand in the biofuel sector and lower EU production of protein crops.

Neal has long identified this problem, describing accurately the DDGS as an inefficient 'Hatsch-Patsch', an old word in both old English and his father's native German meaning a confused mixture of different things and believes that their technologies and approach are perfect for helping solve this challenge.

Their solution is rooted in their Clean Sugar Technology, a tested commercially proven technology that can produce an industrial sugar stream, a high-value corn oil stream and animal feed products including high-purity protein. It can greatly support the demands of companies both large and small in the renewable bio-chemicals industry as it can either be bolted onto an existing plant to create a sugar stream, or can be co-located or co-licensed into a bio-chemical process. "Current supplies are not cheap, we know that to feed new green chemical companies and their products, 70-80% of the cost is found in the carbohydrate raw material cost. We can cut that in half. And this savings then filters down the value chain. So many start-ups that

work on new materials via bio-chemicals have a carbohydrate backbone. Our Clean Sugar Technology can be the tipping point, in a Go-to-Market strategy, for many bio-chemicals. With a cost to produce carbohydrate feedstocks up to 50% cheaper than current processes, lowering your costs, puts you in the market quicker and competitively. I want to buy green, you want to buy green, we all do; but these days, it is tough to pay the extra money for green products. Putting technologies out there that allow green products to compete in the marketplace, is what gets us out of bed in the morning, and we are proud to support the growth of a host of companies in the bioeconomy," states Neal.

Whether its revitalising the revenue streams ethanol plants of America, or helping 'feed the global bioeconomy' with vital low costs sugars and proteins, Neal and the team have an impressive confidence and clarity as to the solutions they can deliver to some of the major problems holding back the growth of our industry. ■

FLUID QUIP TECHNOLOGIES

During the COVID-19 crisis, the team at FQT have been giving away their knowledge, by hosting FQTALKS. Weekly webinars designed to help ethanol plants operate better, more efficiently, and with lower production costs. Informative and engaging, and free to view, click here to check the schedule and catch up on ones you may have missed.

If you would like to speak to Fluid Quip Technologies to learn more about they could work with you, contact FQT's Sales and Marketing Lead, Keith JakelKjakel@fluidquiptechnologies.com +1 309-320-7709 or visit them online at fluidquiptechnologies.com