



By Scott Hewitt CEO and Vincent R. James Ph.D. CTO
Community BioRefineries,

This “Point Paper” has been provided to the Soy Grower’s Associations of several states in an effort to garner their interest in and support of the Community BioRefinery and the unique benefits a CBR can provide to soy growers.

Soy Growers and the Community BioRefinery

Our Focus: We seek commercialization support for the Community Bio Refinery (CBR) by partnering with Soy Growers

Why from soy growers?

- Past efforts have been met with incredible greed (cheats, thieves and creeps);
- Farmers want nothing more than to earn a good living and make a difference
 - The Community Bio Refinery will help them do both;
- U of Illinois, U of Missouri, Iowa State University, and Ohio State University were key technology development partners;
- Much due diligence already accomplished

The CBR is NOT a clone of the Missouri “Soy Labs” project, which focused on old/outdated technologies

Why the focus on soy?

- The CBR can create hyper-pure high quality Soy Protein Isolates (SPI) with nutritive aspects not seen in more traditional SPI
- Numerous applications in aquaculture, nutraceutical foods, medical foods (DuPont high oleic soy hybrid with special oils high in Omega-3).
- HUGE international market for soy products, particularly Japan
 - Soy is a staple food item;
 - They like organic products; however, Japanese are used to consumer goods costing more, but they are also realists and draw the line when their already-expensive foods are hiked even more because they are 'organic';
- Aquaculture is an immense market in the US and overseas. CBR capability to produce fish feed which increases growth of fish and allows a controlled growth environment.
 - Leftover SPI can be blended with special CPI for an especially superior fish feed (every part of the bean gets used)
- The CBR can isolate and recover specific elements contained within the feed stocks, or biomass, run through it. For example, the organic acid called “*fulvic acid*”, which is absorbed into the soy bean from the soil through its root system is present in very small amounts. The CBR can isolate, recover, and concentrate the *fulvic acid* present in the beans *Fulvic acid* has pharmaceutical applications, which provides the CBR with yet another value-added product to the produce.
- CBR process increases levels of “isoflavones” (an anti-oxidant), which brings the soy protein to the nutraceutical level. (NOTE: “nutraceutical” describes food that behaves like a medicine)

- Soy oil is a key component of biodiesel fuel. The creator of the CBR is an original inventor and patent holder of biodiesel from fermentation; he even coined the term “biodiesel” and trademarked it. (The term has since gone “generic”.) The fuels portion of the CBR can create ethanol, or, bio-butanol. We focus on bio-butanol as it is far more efficient than ethanol and creates a far superior biodiesel product. The CBR can also create bio-aviation and bio-jet fuels from the same process.

Why the CBR?

CBR has access to a special non-GMO corn hybrid with its own special nutritional attributes. The CBR process can likewise process this corn to produce a Corn Protein Isolate (CPI) and blend it with SPI to create medical foods and nutraceuticals which can be applied to patients suffering the muscle-wasting side-effects of cancer or HIV treatments to fight off this side effect that so many of these patients experience - from the very treatments intended to make them well.

SPI is not a “complete protein” (i.e., all eight essential amino acids present), but it is very high in lysine. Therefore, in an ideal arrangement, we would work with both soy and corn growers to *BLEND* CBR-processed high oleic SPI with Heart Friendly CPI, producing a blended protein isolate with a PER (Protein Efficiency Ratio) that is off the charts and perfect for nutraceutical or medical applications.

- Elements within soy cause the appetite to increase; therefore, applying CBR techniques to soy enables the isolation and recovery of certain isoflavones present in SPI (if properly processed). These amino acids will counter “cachexia” (muscle wasting condition).
- Isoflavones are the best antioxidants to fight cancer (CBR SPI has the highest levels ever seen – per the USDA).
- A foundation was established to enable medical clinical trials for this very application. **SEE: Protein Therapeutics Foundation** at www.proteintherapeuticsfoundation.org
- The first CBR will have a bright light shined on it for supporting this effort alone.

How much soy per year can be processed in an CBR?

- Several variables:
 - What are the intended final products of a particular CBR?
 - What type of soy is being processed? (Traditional vs. DuPont hybrid, for example)
 - How many lines are being run in a particular CBR? A CBR can run multiple lines of feed stocks and/or biomass simultaneously.
- Nominally, a single CBR would run 15,000-20,000 bushels per year; however, they would not need to be pre-crushed or require any other pre-treatments before delivery.
 - Depending on the desired end products, the requirement can increase.
- The vision is to have multiple CBRs in Missouri and Illinois, increasing the levels of feed stocks and biomass needed.

Why should soy growers support the CBR?

- The use of traditional soy protein isolate is declining due to problems with it (high level of trypsin inhibitors)
 - Cooking destroys most of it, but cooking also severely degrades the protein quality
 - CBR processing alone actually concentrates it, making it even more toxic; HOWEVER, the CBR then applies certain technologies which *remove the inhibitors* (up to 95%)
- Cargill and ADM versions of SPI are 86-88% pure, but their methods expose it to heat and harsh chemicals, so their proteins are considered “junk isolates”
 - ANY cooking, exposure to heat, acids, or poor de-fatting methods ruin the soy protein’s enzymes. The CBR process uses no heat or chemicals and preserves these enzymes.
- The CBR process for soy completely removes the inhibitors, never exposes the SPI to heat/cooking or chemicals/acids so no negative effects on the SPI.
- The CBR can produce extremely high quality SPI which is pristine and has a 90%+ purity level.

What's the deal with biofuels?

- The CBR process creates biofuels from the left over waste from the food processing or biomass efforts.
- The CBR can create a variety of biofuels unlike anything currently on the market anywhere. The Department of the Navy is particularly interested in them, as are many others.
- A fully-producing CBR will include production of biofuels, hydrogen to produce electricity, and much more. For the purposes of this Point Paper, we will look at biofuels to come later; soy oil (from non-hybrid beans) can initially be sold to biodiesel plants in the mean time.

What are we looking for?

- A fully built out and commercialized CBR will require nearly \$100M. Are we looking to soy farmers to collectively provide such funding? Absolutely not (though it would be nice...).
- We are looking to partner with farmers to enable the placement and operation to a fully built-out CBR. If farmers can collectively contribute up to half the needed amount (\$50M), then we will secure the remaining \$50M via combination of Business and Industry loans from the USDA, Department of Energy, and funding from the Export-Import Bank (EXIM), enabled through our sale of soy products to Japan and elsewhere. Should there be a shortfall, we will create an internet offering to raise the balance, though we would prefer not to if possible to preserve equity.
- While discussing the participation of farmers in this project, we suggest perhaps the creation of a co-op as a good vehicle to focus the effort and possibly provide some added benefits that a co-op may enjoy that other entities cannot. Our friends at the Missouri Soy Association pointed out that the laws for co-ops in Missouri are somewhat "antiquated" compared to other states, and felt a simple LLC could work as well. A confederation of soy growers, however they chose to configure it, would greatly streamline and simplify participation in this endeavor.
- However the farmer-investors feel it most appropriate for them, it would enable that entity to be a 50% owner of the CBR, have one 'investor' vs. several hundred, and have a farmer owned and controlled entity to accept and distribute revenues earned to its members. Also, such an arrangement can be accomplished with a Joint Venture Agreement.
NOTE: A JV Agreement enables the parties to participate in arriving at the agreement's terms and conditions, whereas a straight investment involves an offering document with all the terms and conditions already set.
- There are numerous due diligence documents available for review going forward. They explain in detail all the 'who/what/when/where/why/and how'– and much more. We look forward to arriving at the point when a sufficient group is assembled and such documentation can be made available to the group.

FINALLY - In the interest of full disclosure:

We are frequently asked "...if this is so great, why hasn't it been commercialized yet?" After over 30 years of R&D, trial and error, successes and failures, we were at the point of final coordination and commercialization. Independent engineering verified that the CBR process worked and did everything it said it could do.

- Our original efforts to enlist financial support to that end were met with an unbelievable amount of subversion, greed, treachery, and attempted outright theft. Big agribusiness companies, oil companies, venture capitalists, and private investors invariably became very interested, began their due diligence, realized that it was all very real - and then sought to take it for themselves (or bury it).
- We did our best to vet everyone, but one snuck through. For a long time, he was the ideal investor and was excited to be a part of everything. Then, as we were preparing to launch commercially – and with little warning - he did an about face and moved to take over the company for himself.
- Long story short – he has thrown every conceivable sort of frivolous law suit at us - and has been thwarted at every turn. His goal was to bankrupt all concerned to allow him to walk away with the company. He has failed to do so; we were able to enter into a Chapter 11 (reorganization) environment which actually requires us to move forward. We prevailed decisively; our final efforts are to put this person 'in a box' so he can never bother us or anyone associated with us again.

- And this brings us back to our original comment as to “Why soy farmers?” Soy farmers want nothing more than to earn a good living and make a difference – and we are confident beyond doubt that the Community BioRefinery will help them do both.

SEE: www.communitybiorefineries.com