Biochar Marketing Report

Biochar Background / History

Biochar is a solid material obtained from the carbonisation of biomass. Biochar may be added to soils with the intention to improve soil functions and to reduce emissions from biomass that would otherwise naturally degrade to greenhouse gases. Biochar also has appreciable carbon sequestration value. These properties are measurable and verifiable in a characterisation scheme, or in a carbon emission offset protocol.

This 2,000 year-old practice converts agricultural waste into a soil enhancer that can hold carbon, boost food security and discourage deforestation. The process creates a fine-grained, highly porous charcoal that helps soils retain nutrients and water.

Biochar is found in soils around the world as a result of vegetation fires and historic soil management practices. Intensive study of biochar-rich dark earths in the Amazon (terra preta), has led to a wider appreciation of biochar's unique properties as a soil enhancer.

Biochar can be an important tool to increase food security and cropland diversity in areas with severely depleted soils, scarce organic resources, and inadequate water and chemical fertilizer supplies. Biochar also improves water quality and quantity by increasing soil retention of nutrients and agrochemicals for plant and crop utilization. More nutrients stay in the soil instead of leaching into groundwater and causing pollution. http://www.biochar-international.org/biochar

All biochar is not created equal. Studies are currently being conducted at Universities and Agricultural Agencies across the nation to refine various biochar feedstocks, processes, and mixes with other soil additives to produce optimum results with specific crops and soil types. While raw biochar will produce many long-term soil benefits, "charging" raw hardwood biochar with such things as poultry litter has produced excellent immediate and ongoing results.

Current Trends

Dr. David A. Laird of the United States Department of Agriculture (USDA) has forecasted that "A distributed network of [biochar] pyrolyzers will bring jobs and entrepreneurial opportunities to rural communities and allow a greater portion of the revenue to be retained by those communities.

Biochar not only offers a lot of environmental solutions, it can also provide the farmer and rural communities with a host of real benefits. These include improved soil quality; greater crop yields; higher fertilization efficiency; reduce contamination of groundwater from herbicides and other pollutants; heat for homes, barns, and other applications; and potentially the ability to sell carbon credits and offsets in emerging carbon markets."

Dr. Laird goes on to say, "Simply put, biochar production is a long lever from which we can grab a hold of several problems turning them into opportunities to boost efficiency, economics and sustainability for the farmer. Presently, agricultural is one of the highest greenhouse gas emitting sectors of society. It's also highly dependent on huge amounts of fossil fuels to run tractors, make fertilizer, and ship food long distances. Biochar offers a unique opportunity to help transform agriculture from being part of the problem to being part of the solution."

Potential benefits that biochar offers for farming include:

1. Improved soil fertility and crop yields
2. Increased fertilizer efficiency use
3. Improved water retention, aeration and soil tilth
4. Higher cation exchange capacity and less nutrient runoff
5. Clean and efficient biomass energy production from crop residues and forest debris
6. Combined heat, power, and refrigeration opportunities from pyrolysis
7. Leads to net sequestration of carbon from the atmosphere to the soil thereby increasing soil organic carbon (SOC)
8. Greater on-farm profitability
9. Can be financed through carbon markets and carbon offsets
10. Decreased nitrous oxide and methane emissions from soils
11. Provides powerful tool for reversing desertification
12. Provides alternative for slash-and-burn agriculture
13. Can work as component of reforestation and aforestation efforts
14. Can produce electricity, bio-oils, and/or hydrogen fuels
15. Can use wide variety of feedstock including crop residues such as wheat and corn straw, poultry litter, cow manure, forest debris, and other farm-based biomass resources
16. Acts as a liming agent to reduce acidity of soils

Unlike most soil additives, biochar tends to stay incorporated into the soil for many years. Universities and agricultural agencies across the nation are currently researching biochar to refine optimum feedstocks, processes, and blends with other soil additives. While raw biochar will produce many long-term soil benefits, "charging" raw hardwood biochar with poultry litter has produced excellent immediate and ongoing results .

Biochar Markets

In addition to use as an agricultural soil additive/enhancer, biochar may also be used as a "coal substitute" fuel, or as a filtering/sequestering agent for specific purposes. Depending on the feedstock and the manufacturing process, different qualities of biochar draw optimum value for different types of use, with a wholesale price range of roughly $400 - $1,400 per ton. High-grade agricultural biochar holds the highest value.

Our Target Market

Organic farming has been one of the fastest growing segments of U.S. agriculture for over a decade. The U.S. had under a million acres of certified organic farmland when Congress passed the Organic Foods Production Act of 1990. By the time USDA implemented national organic standards in 2002, certified organic farmland had doubled, and doubled again between 2002 and 2005. Organic livestock sectors have grown even faster. ERS collected data from USDA-accredited State and private certification groups to calculate the extent of certified organic farmland acreage and livestock in the United States.

U.S. producers dedicated approximately 4.8 million acres of farmland—2.7 million acres of cropland and 2.1 million acres of rangeland and pasture—to organic production systems in 2008. Top States for certified organic cropland include Wisconsin, California, North Dakota, Minnesota, and Montana. Forty-five States also had some certified organic rangeland and pasture in 2008, and 13 States had more than 100,000 acres, reflecting strong growth in the U.S. organic dairy sector between 2005 and 2008.

Adoption of organic farming systems showed strong gains between 2002 and 2008, averaging a 15 percent annual increase in cropland acreage during this period. While the adoption rate remains high, the overall adoption level is still low—only about 0.7 percent of all U.S. cropland and 0.5 percent of all U.S. pasture was certified organic in 2008. Many U.S. producers are embracing organic farming in order to lower input costs, conserve nonrenewable resources, capture high-value markets, and boost farm income.

To stay competitive, the organic farming community is extremely innovative and open to any allowable practice that will improve the harvest. The US National Organic Plan currently rules biochar as an unclassified organic soil additive. While this ruling generally allows biochar for organic agricultural use, the biochar feedstock may come into question by some certifiers. For this reason, SynSel will document biochar feedstock as organically sourced when necessary.

To maintain the added value of organic products, the organic farming community is also very quality-conscious. In addition, one of the central benefits of biochar to soil quality and crop yields is its ability to retain key nutrients including nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), and magnesium (Mg), along with other minor and trace nutrients. This central benefit is very important to organic growers with goals of producing nutritionally superior feed and produce.

There are currently 53 recognized fertilizer and soil amendment manufacturers/suppliers serving the US organic farming community. 30 of these manufacturers are located in the upper Midwest, with 12 located in Wisconsin alone. Many of these manufacturers provide custom-mixing services to meet the individual needs of each farm. While some of these manufacturers may consider biochar as a threat to their business, we are hoping to build an initial customer base through this market channel.

The Competition

Research in 2013 indicated 11 agricultural biochar producers in the Continental United States and Canada, with no producers located in the Midwest. Aside from these, there are no "volume producers" of agricultural biochar in the US, and no US biochar producers officially recognized by the MOSES, the leading US organic farming community trade association.

Sales

At an expected initial application rate of 200 pounds per acre, our modest initial biochar production capacity of 700 tons annually would allow SynSel Biochar to supply our market with enough biochar for 7,000 acres. This amount of acreage represents a tiny fraction of the potential organic acreage in the upper Midwest alone. Agricultural biochar (uncharged) currently retails for $12.50 per pound in 3-pound bags, and $1,300 per ton wholesale. We have used a conservative figure of $400 per ton for our first-year sales projections.
http://www.wesionline.com/index_files/Page512.htm

Advertising & Promotion

Relationships are the foundation of all successful businesses. In the course of my career, I have built strong relationships with national leaders in the organic farming community. I live in La Farge, WI, home of Organic Valley/CROPP Cooperative. OV/CROPP is the nation's largest organic product producer, and my experience has taught me that my La Farge address tends to gain organic credibility by zip-code.

Professional promotional materials would be developed for SynSel Biochar, and all sales prospects will receive my personal professional care in the initial business development stage. Additional plans would be to address organic farming trade associations, to gain publicity through feature articles, to purchase cost-effective advertising space in organic trade journals, and to exhibit at organic farming conferences. I am a regular attendee of the world's largest organic farming conference held in La Crosse, WI in February each year.

Summary

With the proper marketing, I believe SynSel is perfectly positioned to seize a significant market share in a rapidly developing US Organic Agricultural Biochar market. Our timing is excellent, and we have all of the critical components to build a very lucrative value-added product for both the organic farming community and the organic gardener/consumer.

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