PRS/Gasification

A Solution to Algal Blooms

Abstract

Introduction:

Quasar energy group (quasar) has designed and demonstrated a Phosphorus Recovery System (PRS) that recovers 99.7% of P (or < .5mg/L in remaining liquid) from the liquid fraction of manure. Resulting liquid retains nitrogen (N) and potassium (K) with agronomic benefit to area farms where application of P is the limiting factor. The high P solids can be transported outside of distressed watersheds for agronomic benefit.

With the liquid fraction handled by our PRS the question now becomes – how do we manage the solids more affordably? Gasification is the most probable solution. Gasification has the ability to capture 100% of the phosphorus and 85% of the nitrogen present in the dewatered solids. It also reduces the original volume of material by 80 – 90% and results in an ultra-concentrated "biochar" product that is nutrient rich, easy to store and less expensive to transport.

PRS/Gasification is not a one-industry solution. The gasification system can be used to manage any dewatered organic waste once it is sufficiently dried. The system is scalable to suit any size operation.

The environmental benefits of biochar are significant. With much less material to manage, biochar can be cost effectively transported across the country to destinations where nutrients are scarce. Without an affordable, commercially available solution to the widespread nutrient problem, watersheds across the country will continue to be impaired by environmental issues. Redistributing nutrients is the key to eradicating concerns such as algal blooms in distressed watersheds. With smaller yields and significant environmental benefits, biochar is a long term nutrient management solution that can impact anaerobic digesters, food processors, agricultural producers and municipal treatment plants across the country.

Conclusion:

PRS/Gasification seeks to transform the nutrients found in manure into a new profit center for farms. Algal blooms in watersheds across the country are being attributed to agricultural runoff and municipal discharge. While states are clamoring for immediate solutions, agricultural producers are at a loss for cost effective methods of managing these challenges that allow them to continue expanding their businesses. That cannot happen unless the solution to the nutrient problem results in an end product has the real potential to be a profit center for farms – we believe biochar has that potential.