Aquaculture to Biofuels; Three Decades of Microalgae Lessons

The author will review key lessons learned from 35 years of experience with laboratory and field-scale algae culture applied to aquaculture, wastewater treatment, environmental remediation and bioenergy and biofuels production. These experiences range from algal treatment of animal wastes, laboratory determination of algae growth kinetics, to development of the algal-based Partitioned Aquaculture System and Controlled Eutrophication Processes at Clemson University. Currently Dr. Brune is involved with development of systems for “Sustainable Seafood and Bioenergy Co-production.” Sustainable aquaculture represents the best application of algal technology providing animal feeds and bioenergy as co-products. Preliminary projections of combined aquaculture/bioenergy processes suggest 60% of system cash-flow may be provided by fish and shrimp production with 30% from animal feeds and 10% from bioenergy co-production.

BIOGRAPHICAL:

Dr. E. Brune serves as Professor of Bioprocess and Bioenergy Engineering within the Division of Food Sciences and Bioengineering at the University of Missouri at Columbia, Missouri. Brune previously served as Endowed Chair of Natural Resource Engineering in the Department of Agricultural and Biological Engineering in the College of Agricultural and Life Sciences, at Clemson University in South Carolina. He is known for his expertise in aquaculture engineering and wastewater treatment system design. He has been involved with aquacultural engineering for over 30 years developing integrated microalgae systems for aquaculture, biofuels, bioproducts and environmental remediation. Dr. Brune has published more than 60 technical papers and has made more than 100 technical presentations at national and international symposia and has served as technical advisor to a number of national and international committees, most recently as advisor to the “International Network on Biofixation of CO2 and Greenhouse Gas Abatement with Microalgae.”

DATE • TIME • LOCATION:
Tuesday February 21, 2012, 4:00 PM, 105 Agricultural Engineering Building