AN INTEGRATED MANURE UTILIZATION SYSTEM (IMUS)

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Manure is a by-product from livestock operation and a valuable biomass resource. A conventional approach to manage animal manure is to spread on land. Major concerns associated with this management are surface water and ground water contamination caused by pathogens and excess nitrogen, phosphorus, and other soluble salts, as well as air pollution contributed by odors, dusts and ammonia. Emission of methane and nitrous oxide as greenhouse gases is also of concern. Although this practice is extensively used, the amount of land required increases with increasing size of livestock operations. As a consequence, transportation of manure over longer distances becomes inevitable as livestock operations intensify, adding to the cost of the process and greenhouse gas emission. Novel, cost-effective technologies that promote the utilization of energy and plant nutritional values of manure while minimize negative environmental impacts are needed. The Alberta Research Council Inc. and Alberta Agriculture, Food and Rural Development have teamed up with industries to develop an integrated manure utilization system (IMUS), which can provide the livestock industry with an economically and environmentally viable technology for managing manure as a valuable resource, deriving economic benefit from organic carbon and nutrients contained in the manure, offsetting greenhouse gas emissions while eliminating adverse environmental impacts and reduce greenhouse gas emissions. It uses manure as raw material to generate biogas, as green energy, organic fertilizer and reusable water while at the same time reduces air and water pollutions. This presentation will highlight the economical and environmental benefits of the IMUS technology and basic design for a demonstration unit.

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