

ITEM: 8

SUBJECT: Potential to Link Improved Nutrient Management with Alternative Energy Production and Greenhouse Gas Reduction

BOARD ACTION: *Informational item only.*

BACKGROUND: Dr. Stephen Kaffka, Director of the California Biomass Collaborative and extension specialist in the Department of Plant Sciences at the University of California, Davis, will make the presentation. The abstract for his talk is below:

Intensive livestock feeding operations efficiently utilize diverse feeds, including many agricultural by-products and wastes to produce high quality animal proteins at low cost. In the process of efficiently producing food, confined animal feeding operations unavoidably concentrate nutrients contained in imported feeds in livestock manures. A recent report (Harter, Lund, et al., 2012*), however, identified substantial nitrogen surpluses in the Tulare Basin region, attributed to both fertilizer use on diverse crops and manure from dairies. Combined, these sources equal nutrient applications in amounts more than twice what is removed in crops and other products. Nutrients in livestock manures are difficult to manage with the same precision as fertilizers and their use can lead to over fertilization and lower nutrient use efficiency. Some economic way should be found to remove excess nutrients from any livestock enterprise where surpluses exist.

California's Global Warming Solutions Act (AB32) requires that the state's economy reduce greenhouse gas (GHG) emissions. Livestock manures can produce methane that can substitute for natural gas and other uses of fossil energy, the source of excess GHG emissions. Manures can be treated using anaerobic digestion systems to produce bio energy (methane, electricity, compressed natural gas), but excess nutrients still must be managed. Anaerobic digester effluents can be treated to increase nutrient concentrations, allowing them to act more like fertilizers, and to be transported greater distances, where they can be used in place of traditional fertilizers. Residual fibers can be used for bedding or composted, and water used for irrigation. Currently, concentrating nutrients from anaerobic digester effluents is more expensive than the value of the nutrients. Through a combination of technical innovation, income from energy and nutrient sales, carbon credits for GHG reduction, and creative and supportive public policies, ways might be found to overcome costs and convert an environmental burden into an asset, linking improved nutrient management in the region with GHG reduction.

*T. Harter, J. Lund, et al. 2012. Assessing Nitrate in California's Drinking Water, With a Focus on Tulare Lake Basin and Salinas

Valley Groundwater. <http://groundwaternitrate.ucdavis.edu>

RECOMMENDATION: None – Information Item Only.

Mgmt. Review____FSM_____

Legal Review_____

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