PAM and Manure Liquid-Solids Separation and Nutrient Management. (S06-vanotti143620-Oral)

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Abstract:

Most of the organic nutrient elements (nitrogen and phosphorus) and volatile solids in manure are contained in very fine suspended particles (< 0.3 mm) that are not separated by mechanical separators. Polyacrylamide (PAM) polymers increase separation efficiency of suspended solids and associated nutrients. PAM action is by binding together the small particles into larger particles (flocs) that separate from the liquid and dewater more readily. Cationic PAMs with low charge density provided best results with liquid manure. The treatment is more efficient when liquid strength is higher. In general, PAM treatment can provide separation efficiencies higher than 90% for total suspended solids, volatile suspended solids, and organic P and N. This treatment also increases the N:P ratio of the effluent that results in a more balanced effluent for nutrient needs. Transport of solids and treatment and handling of remaining liquid is made easier, with accompanying implications for improved management of nutrients in areas where animal production is concentrated.

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