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The use of wetlands and chemical injections to control sediment and soluble phosphorus

Jim Ippolito and Dave Bjorneberg
USDA-Agricultural Research Service, Kimberly, United States (jim.ippolito@ars.usda.gov, (208)423-6555)

Irrigated agriculture accounts for ∼25% of the total US cropland, yet comprises 55% of the US crop value. These systems play a major role in US production agriculture, and thus it is important to manage irrigated systems to maintain or improve environmental quality. Irrigated agriculture in the western has historically utilized furrow irrigation. It has long been recognized that furrow irrigation causes particle detachment and transport, leading to increased sediment and nutrient (e.g. P) loads to receiving water bodies. The use of engineered wetlands in furrow irrigation settings can help capture sediment and sediment-bound P (>90-95%). One of the main water quality challenges that exists today is reducing soluble P in irrigation waters returning to receiving water bodies. This presentation will focus on the use of strategically located wetlands in conjunction with chemical injections (alum or polyaluminum chloride) to reduce water soluble P in order to meet total maximum daily P loads in receiving water bodies.