

## **THE USE OF INTEGRATED CONSTRUCTED WETLANDS (ICW'S) IN ANIMAL SLURRY MANAGEMENT**

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### **ABSTRACT**

The management of agricultural wastewater and slurries is of recognised environmental, economic and social concern. Alternatives to the widely used practice of land spreading of these wastes are often of limited success and can have poor predictability. The use of constructed wetlands is one alternative that has shown distinct advantages, especially in areas of high and unpredictable rainfall. A case study of a free-water-surface-flow-constructed wetland is presented. This study wetland is one of a number based on a specific wetland design termed, 'Integrated Constructed Wetlands' (ICW's), that have been built in Ireland since 1996. These ICW's have been built primarily to manage dairy washings, farmyard wastewater and runoff but have also been applied in a wide range of situations, from cleansing wastewater from the food processing industry to sewage treatment. The integrated concept of the design is based upon a broad framework of wetland ecosystem function. It combines water quality management needs with landscape fit and biodiversity/habitat enhancement. Information on phosphorous capture/retention, denitrification and ammonia impact/management is presented. The wetland described has the capacity to convert high volume liquid waste to a concentrated solids based compost that has a much enhanced value whilst being less susceptible to the limitations imposed by site and weather conditions.