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# CONFERENCE REPORT

The traditional ASAE winter meetings are beginning to catch the interest of environmental engineers because of the importance of agricultural sources of pollution and the potential of soil as waste recipient.

There were three symposiums going on during that time in Chicago. The Second National Home Sewage Treatment Symposium discussed the growing problems of septic tanks and methods of alternative single home treatment systems. The problem is so far recognized by only few scientists in this country and warrants much wider attention.

The symposium focused on six home sewage treatment concerns soils and site evaluation and septic tanks:

design and operation of soil absorption fields;

alternative systems for on-site sewage treatment;

factors affecting operation of a soil absorption field;

management and water conservation applied to on-site sewage treatment systems;

Included were 26 technical presentations, providing an update on the state-of-the-art in home sewage treatment practices. The symposium had concluded at noon on Tuesday, December 13, 1977.

The National Symposium on Soil Erosian and Sedimentation by Water encompassed a host of new and extremely hard to control economically problems of nonpoint natural and man-made sources of pollution.

The symposium focused on concerns in agricultural areas, urban areas, and construction sites relating to prediction of erosian losses and sediment yields and various methods of erosion and sedimentation control. Included were 14 technical presentations, providing an update on the state-of-the-art. The Symposium had also concluded at noon on Tuesday, December 13, 1977.

The main conference, under the heading of "The Food–Energy–Fix" was a giant meeting of over 2000 people. Each day carried a full load of thirteen concurrent morning and afternoon sessions. A total of 400 presentations were made, including technical slide and film shows. A great number of various committees met during the conference; approximately 250 meetings took place concurrently with the conference, debating matters ranging from administrative ASAE bussiness to technical details of official policy in detailed topics such Session FE-73/1: Food Processing Waste Management and Utilization or SW-263 Disposal of Waste on Land.

The Polish delegation: Jan OLESZKIEWIFZ, Tadeusz ŁANOWY and Szymon KOZIARSKI had participated in meetings associated with management of animal wastes, taking part in the discussion from the floor and in the specialized working group meetings.

The environmental engineering problems were discussed in the following sessions: No 5 (Dec. 13): Evaluation and control of agricultural nonpoint source pollution; No. 10 (Dec. 13): Environmental air quality; No. 11 (Dec. 14): Planning large swine housing systems; No. 4 (Dec. 14): Heavy metals — what we know and don't know; No. 5 (Dec. 14): Water quality transport modelling, No. 8 (Dec. 14): Technology transfer in animal environmental systems; No. 11 (Dec. 15): Anaerobic and aerobic lagoon systems; No. 10 (Dec. 15): Livestock wastes and No. 12 (Dec. 16): Food processing waste management: utilization, treatment and disposal. Other sessions of general interests were confined to irrigation, watershed systems modelling, groundwater, water law, etc.

The topics discussed in the session devoted to nonpoint pollution sources (NPS) included the effectiveness of forest and grass buffer strips in improving the water quality of manure polluted runoff; the loading

models for pollutants in agricultural runoff; the state of the art discussion of irrigation return flow modelling; various soil and water conservation practices for pollution control, and effects of tillage systems on small watershed runoff in respect to pesticides and nutrients.

Since agriculture is one of the principal point and nonpoint sources of air pollution, session 10 (Dec. 13) encompased topics such as: identification of dust-borne odors in swine confinement facillities; dust control during land development for irrigation; dust levels and particle-size distributions in warehouse compress operations; characterization of particulate emissions from grain sorghum storage and handling situations; and design and cost of lowering dust levels in the working environment of cottonseed oil mills.

The heavy metals session dwelt on such topics as heavy metal considerations for land application of waste; proposed sludge metals guidelines; toxicity of heavy metals to man; factors affecting determination of tolerable intakes, and the wastes–soil–plant–food chain and its effects on man.

Treatment of animal wastes was discussed in several sessions. It was evident that American animal husbandry practice is still confined primarily to dairy and beef cattle while swine farms are still small one--family bussinesses with an average farm of 700 hogs. Simple biological systems for waste treatment and disposal are used, such as in-house oxidation ditches, anaerobic and aerobic lagoons, or ponds. The papers presented reveal a need for optimizing the nutrient budget in lagoon and irrigation systems for various types of agricultural wastewaters from animal feedlots, slanghter houses, milking parlours, etc. It is interesting to note that for flushing purposes in swine farms, final biological effluents are used. The discussions with loading scientists led to the conclusion that there is a tendency in the USA to research the applicability of large industrial scale swine farming, but the stress is on an optimized cost-effective system that takes into account recycle, reuse, energy recovery and refeeding values of animal manures.

The level of some of the papers presented and the approach to certain topics left a lot to be desired. The topics were mixed from initial manure characterization to detailed description of treatment systems. In certain cases the literature gap between the agricultural and sanitary engineering became apparent. In other instances it was evident that particular achievements, such as experience with small size anaerobic digesters, presented by various authors, are going without being recognized by sanitary and process engineers.

In summary, the trends in agricultural wastes management in the United Stated States are towards large open basins, with primary anaerobic breakdown of organic matter followed by aerobic lagooning in aerated or non-aerated earthen basins. There is an increasing concern with the loss of nutrients, (nitrogen and phosphorus) from manure during treatment, prior to land irrigation disposal. In order to retain nitrogen, anaerobic digestion in closed tanks is being experimented, in full and in pilot scale, with valuable biogas as a byproduct. The research needs here encompass the start-up and stability of operation in small farms scale, the control problems of acid fermentation phase and proper methanogenesis.

Other problems that are presently in research phase in the United States were discussed by our group with individual researchers, beyond the official programme. These included: direct refeeding, mixed liquor recycling, biogas and city gas supply combinations, economics of small scale recovery systems, biodrying — i.e. dehydrated manure composting, anaerobic filtration, and other topics.

During the conference the specialized ASAE Waste Management Conference was accepted, to be held in Amarillo, Texas, in April 15–17, 1980. The programme, that should be detailed shortly, includes optimization of animal wastes treatment with reference to recovery, reuse and refeeding, land application and economics of environmentally sound animal wastes disposal.

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