Disposal of effluent from piggeries

P McNamara

Follow this and additional works at: https://researchlibrary.agric.wa.gov.au/journal_agriculture4

Part of the Bioresource and Agricultural Engineering Commons, Other Animal Sciences Commons, and the Structural Materials Commons

Recommended Citation
Available at: https://researchlibrary.agric.wa.gov.au/journal_agriculture4/vol10/iss9/4

This article is brought to you for free and open access by Research Library. It has been accepted for inclusion in Journal of the Department of Agriculture, Western Australia, Series 4 by an authorized administrator of Research Library. For more information, please contact jennifer.heathcote@agric.wa.gov.au, sandra.papenfus@agric.wa.gov.au, paul.orange@dpird.wa.gov.au.
ONE of the major problems associated with an intensive piggery is the disposal of the effluent; the nearer the piggery is to urban areas, the greater the problem.

Public health requirements will in many cases dictate what form disposal must take, and this might in some cases even necessitate breakdown tanks and discharge into the main sewer.

In rural areas there are two main ways to approach the problem—to dispose of the effluent, or to make use of it.

In terms of fertiliser, the value of 1,000 gallons of sludge is about $10, and even appreciating that some of this will not be available the value of the effluent from a piggery holding 500 pigs throughout the year could amount to $1,800.

**Spreading on the land**

Effluent from the piggery is collected in a storage tank near the piggery. The size of this holding tank will depend on frequency of emptying and volume of dung and urine produced. To estimate the approximate amount, a figure of 1 gallon per pig each day can be used, to which must be added washing down water if a solid floor dung race is used.

One such piggery holding on average 250 bacon pigs has a holding tank of 8,000 gallons capacity, pumped out once a week,
giving a water usage for washing down and water bowl overflow of about 3 gallons per pig each day.

Method
Firstly effluent can be pumped into a tanker and taken to distant parts of the farm. This system is used very little in Australia, although it is popular in Europe.

Secondly, the effluent can be pumped to a "rain-gun" which will spray it over about half an acre at a time, at a rate of 6,000 gallons per hour.

This latter method has worked well and has proved very satisfactory under varied conditions.

The cost of pump, pipes, motor and rain-gun should be less than $500, and once it is installed the labour requirement is small. Provided straw is kept out of the tank, blocking will not occur and an even distribution of effluent will be achieved. No trials have been carried out to measure in exact terms the increased productivity of the land sprayed, but the benefit has been obvious.

In summer, scorching could take place if leafy crops were treated, and it is suggested that special areas should be set aside for summer treatments. These areas will get away to a good start in autumn. Provided paddocks are not grazed for a period after spraying there is no likelihood of disease carry-over.

It must always be remembered that this is a disposal system, not irrigation. If irrigation is required, far more water will be necessary.

Ponds
The use of anaerobic ponds is the only ponding method which can be recommended for farm use and which has proved satisfactory both here and in other States.

In most cases a single pond 8 to 12 ft. deep and allowing 120 cu. ft. per pig housed is constructed. It is filled to a depth of 2 to 3 ft. with water, and effluent is discharged into it. Breakdown takes place and solids are deposited at a rate of about 20 cu. ft. per year. Operated correctly, the pond should be free of odours and unsuitable for fly breeding. After a number of years the pond will silt up and a second pond will be required, and over the years this is in use the first one can be dried out and the solids carted away.

A secondary aerobic pond, not more than 3 ft. 6 in. deep can be coupled to the primary pond; in this, further breakdown can take place, the water being used for irrigation.

In some soils it will be necessary to cover the insides of the ponds with plastic sheeting to prevent seepage.

The cost of construction of ponds is relatively low, and it pays to build them larger than appears necessary.

The diagram illustrates the layout of ponds. Note particularly that discharge into the primary pond is below the surface and that take off to the secondary pond discharges well down the pond.

Septic tanks
Trials using septic tanks have not proved wholly successful and these are not recommended.