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Short report

Tasmanian dairy farm effluent management program

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Abstract

The Tasmanian dairy industry, in partnership with State and local government, has developed a joint extension and regulation program to promote self-regulation for effective effluent management on dairy farms. A Code of Practice has been developed to assist this. Involvement of all stakeholders in an industry working group is the key to the success of the program. © 1999 Elsevier Science Ltd. All rights reserved.

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1. Introduction

The dairy industry in Tasmania[1] produces about six per cent of Australia's milk production and about 10% of Australia's dairy exports on a milk equivalent volume basis. It has 747 dairy farms with some 130 000 cows milked, and seven major manufacturers/processors manufacturing and processing 542 million litres of milk to produce a variety of milk and dairy products.

Dairying in Tasmania is seasonal in nature, with herds predominantly made up of spring calving Friesian dairy cows. Production costs have been kept low through a pasture-based industry where perennial pastures are largely harvested directly by dairy cows, or made into silage and hay for in paddock feeding. This low cost structure combines with relatively low land values to make the Tasmanian dairy industry one of the most cost-effective dairy industries in the world.

There is scope to double the size of the Tasmanian dairy industry and potential for significant investment from those dairying in higher cost areas. In line with its policy for sustainable agriculture, the Tasmanian Government has made a commitment to further the advancement of the dairy industry in a recently announced Dairy Industry Plan, which aims to increase production by 50 per cent over the next decade and boost the number of dairy farmers achieving World's Best Practice. The dairy industry in Tasmania is attracting considerable attention and investment from overseas interests.

The past ten years (1988–1997) has seen a 25% decrease in dairy farm numbers in Tasmania (to 747 farms), an 83% increase in herd size (to an average 182 cows) and an 86% increase in milk production per farm (from 370 000 litres to an average 690 000 litres).

Dairy farming is becoming more intensive with increased herd sizes and stocking rates, and the concentration of dairying into the most favourable areas have resulted in increased amounts of effluent being produced on farms and an increased risk of pollution. As a consequence, the dairy industry has been increasingly blamed for reports of severe pollution of rivers and streams, and downstream water users in recent years.

Most of the manure produced is distributed on land by grazing cattle and, in so doing, the nutrients are recycled. However, about ten per cent of the manure is deposited at the farm dairy during the twice daily routine of milking.

The effluent attributable to farm dairies includes dung and urine excreted in dairy yards, milk, detergents and dairy shed and yard washdown water. This waste water

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[1] Tasmania is Australia's island State, located about 240 kilometres off the south-east corner of the Australian continent (latitude 40° 38' and 43° 39' south and longitude 144° 30' to 148° 23' east). The triangular-shaped island is mountainous with very little of the surface area close to sea level. It has an area of about 6.8 M hectares of which some 2.3 M hectares are rural holdings.

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is collected at one point near the farm dairy and requires effective management to prevent pollution. There is wide variability between farms in both the volume and nutrient concentration in the waste water produced. It must be managed in a manner that does not pollute surface or ground waters or create undue odour.

In Tasmania, the situation is particularly difficult as many dairying areas are on undulating land with numerous waterways. Farm dairies have been traditionally located adjacent to water courses to provide a permanent water supply for stock and cleaning of the dairy and associated equipment.

Waste minimisation is being achieved through use of large sumps with tractor access to remove up to 75 per cent of suspended solids for direct application to pasture, rain water diversion and re-use of washings for yard cleaning.

2. Government initiated pollution prevention program

In 1991, the Tasmanian Government (the then Departments of Primary Industry and Fisheries, Health and Environment and Land Management) developed a joint program with the Tasmanian Farmers and Graziers Association and local government to stop unacceptable levels of water pollution from the State's dairy farms. Under Tasmanian legislation, municipal councils have primary responsibility for the control of water pollution.

The aim was to have all dairy farms with effective dairy effluent management systems in place by December 1996. Methods in common use include land application to pastures by direct spraying, dilution with water for flood or spray irrigation, anaerobic storage ponds in winter/spring, in conjunction with strategic pasture application of the stored water in summer/autumn and anaerobic/aerobic ponds alone, or in conjunction with a spray irrigator.

The program involved inspection of effluent management systems on all dairy farms by the Environmental Health Officer from the appropriate municipality, categorisation of farms with respect to polluting potential and a commitment by farmers where improvements are needed to complete them within an agreed time frame. The farmer commitments are followed up by Environmental Health Officers.

By July 1995, each of Tasmania's dairy farms had been assessed, with dairy farmers making commitments as necessary to improve effluent management. Forty-six per cent of dairy farms were found requiring attention to dairy effluent management to prevent pollution, and make effective use of the effluent on pastures (twenty-seven per cent did not fully retain dairy effluent on their dairy farm property and nineteen per cent had potential for run-off in wet periods).

3. Industry based self regulation

During 1996 and 1997, an industry based working group developed a code of practice for managing dairy farm effluent in Tasmania. The group consisted of two farmer representatives, an Environmental Health Officer from a municipal council, a delegate from the Dairy Industry Association of Australia and a representative from the then Department of Primary Industry and Fisheries. The Code of Practice was released jointly in August 1997 by the then Minister for Primary Industry and Fisheries and the Chairman of the Dairy Council of the Tasmanian Farmers and Graziers Association.

The Code of Practice for Managing Dairy Farm Effluent outlines the principles to be followed for effective management of dairy farm effluent. It covers aspects such as site planning, system design hazard analysis and a management mechanism for the Code itself. The Code has the following purposes:

- Promote industry self regulation;
- provide information for planning authorities on the assessment and control of effluent management under the Landuse Planning and Approvals Act 1993 and the Environmental Management and Pollution Control Act 1994;
- promote environmental responsibility;
- increase community awareness about environmental management in the dairy industry;
- provide a simple mechanism to enable identification of farms polluting through a variety of sources to ensure appropriate follow up; and
- provide a list of technical information.

Our experience to-date indicates that the Tasmanian program provides an effective mechanism for benchmarking and measuring progress in dairy farm effluent control by co-operative links between the various Government bodies and the dairy farmer organisation involved.

4. Conclusion

Dairy farming produces waste in quantities at the farm dairy that require specially planned and designed waste management systems.

The Tasmanian dairy industry has a successful joint extension and regulation program to promote effective dairy farm waste management. Previously, extension and regulating bodies had little impact. The involvement of people from appropriate organisations representing all interests is a key to the successful Tasmanian dairy effluent management program.

A program such as this promotes environmentally sustainable management of farm dairy waste water and gives a clear message to the general community that dairy farmers are taking responsibility to protect the environment.