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Financial Incentives for Manure Management Solutions in a Peri-Urban Context

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Abstract

In the peri-urban context of West-Java, Indonesia, manure is often discharged from dairy farms without future use. A survey of 300 dairy farmers in the district of Lembang, West Java, showed that 84% of farmers discharged at least part of their manure directly into the environment. These practices lead to local nuisance, losses of valuable nutrients, eutrophication of water bodies, and higher greenhouse gas emissions. On the contrary, proper manure management practices involving collection, treatment, storage and application of manure as a fertiliser are known to be beneficial to the environment and to farmers. It is therefore worthy to encourage farmers to collect manure for application as a fertiliser on land used for fodder or food production.

This study analyses the costs and benefits of various manure management options which are already applied by a few farmers or are applicable under the current socio-economic situation in West Java. Data were collected on 50 dairy farms in 2016 in Lembang, West-Java. Three manure management options were analysed in terms of costs and benefits, where the farmer 1) applies manure to his own farmland without processing 2) sells or applies bio-slurry on his farm after using manure in a bio-digester and 3) sells the manure to a collector who processes it to compost and then sells it to large scale farmers.

Results showed that all manure management options were profitable. Applying manure on own farm appeared more beneficial than selling it. A farm with 2 cows would have about 20 times more benefit from fresh manure when he applies it as an organic fertiliser on his own farm rather than selling it. Profitability of manure management increased with herd size and farmers could be encouraged to manage manure together to increase profitability. Investing into manure collection, composting and selling to large scale farmers is a profitable option. Obtaining a bank loan would facilitate such an investment and in this case, the option would still be profitable on a five year loan at 10% interest rate pa.

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