

author: J.P. Newell Price

Description

Transport poultry litter to an incinerator where it is burnt.

Rationale, mechanism of action

The manure and the N, P and faecal indicator organisms (FIOs) it contains are removed from the farm and eliminated as a source of diffuse pollution.

Removing the manure from the farm removes the source of pollution. The manure is reduced to a much smaller quantity of ash, which is generally returned to other farmland as a P and K fertiliser where there is a requirement for these nutrients. Although FIOs are destroyed by incineration, these organisms are not normally of concern where poultry manure is applied to farmland as the usual practice is to stack the manure in the field for several months before spreading. This allows sufficient time for most FIOs to die off during the storage period.

Applicability

The method is only applicable to poultry litter and some dry layer manures. The moisture content of straw-based farmyard manures is too high for incineration.

Effectiveness, including certainty

Most of the poultry litter on broiler farms is applied in autumn and early winter [1]. Elimination of this N input will result in a significant reduction in N losses (potentially 30% of the baseline N loss on the land to which the method is applied), as the pollutant is reduced at source.

For phosphorus, Cuttle et al. [2] estimated that incinerating poultry manure would reduce the manure component of the baseline P loss by 90% (assuming that all broiler manure would be removed from the farm) [2]. FIOs are unaffected by the method – because most FIOs will have already died off before spreading [2].

Time frame

For nitrate the method will be fully effective within two winters of implementation. For phosphorus there will be an immediate effect due to a reduction in incidental losses, but also additional savings in the longer term as the method will gradually reduce soil P contents, which will reduce losses of P attached to soil particles and by leaching

Environmental side-effects / pollution swapping

When incinerated, the N content of the manure is lost to the atmosphere but mostly as harmless dinitrogen gas. Compared with land spreading, there are reductions in emissions of ammonia and nitrous oxide but a small increase in carbon dioxide emissions [2].

Relevance, potential for targeting, administrative handling, control

Applicability of the method will be limited by the availability of suitable incineration facilities within an acceptable distance of broiler and turkey farms.

Costs: investment, labour

In England, Energy Power Resources Limited (EPRL) currently carries out this service, producing energy for the national grid. The plants are located at Thetford in Norfolk and Eye in Suffolk and account for some 580,000 tonnes of poultry manure/year. Currently no charge is made for collecting the litter from the farms and the ash is sold as *Fibrophos*, an organic fertiliser. Where poultry litter is not incinerated, it does have a commercial value. Until recently, it paid the poultry producer to export it and the accepting arable farmer to import it at no extra cost. However, as the price of fertiliser increases, the poultry manure may have greater value and poultry producers could charge arable farmers for transport and spreading. The break-even distance for transport will depend on fuel and fertiliser prices. In some cases, poultry manure is transported over 70 km, which currently is at a cost to the producer.

References

- [1] Goodlass, G., Thomas, M., Welch, W., and Newell Price, J.P. (2006). British Survey of Fertiliser Practice: fertilizer use on farm crops for crop year 2006. The BSFP Authority, London ISBN 978-0-95525-692-9.

- [2] Cuttle, S., Macleod, C., Chadwick, D., Scholefield, D., Haygarth, P., Newell-Price, P., Harris, D., Shepherd, M., Chambers, B. & Humphrey, R. (2006) An Inventory of Methods to Control Diffuse Water Pollution from Agriculture (DWPA) USER MANUAL. Defra report, project ES0203, 115 pp. p. 43-44 http://www.cost869.alterra.nl/UK_Manual.pdf