

SCI Agriculture and Environment Group Symposium

Use and Value of Organic Materials in Agriculture

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Introduction: Criteria Used to Judge the Use and Value of Organic Materials in Agriculture

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In the modern world the full consequences of the application of any material to land have to be ascertained. Such substances must not only be of immediate positive value, but also must not create problems in the long term, either in the soil itself or in water and air. The benefits and problems should also be quantified economically, as this factor will be the first one which determines whether a given material will be used.

With these concerns in mind, it is possible to ask the following important questions about any current or future material which is to be applied to land:

- (1) Is there a positive benefit? Even if it is being thought of primarily as a soil improver rather than as a 'fertiliser', this usually translates to increased animal or plant growth.

- (2) Are other inputs/nutrients needed? Often, organic materials are not properly balanced in relation to the nutrient elements, and further fertilisers will be required.
- (3) Does its use cause a build-up of potentially harmful substances in the soil? Examples would be heavy metals and organic pollutants.
- (4) Does its use pollute parts of the environment? For example, although the soils may remain healthy, large amounts of nitrogen-rich manures may mineralise nitrate when the crop is not growing and the likelihood of leaching to groundwater is high, causing concern in drinking water supplies.
- (5) Does its use cause any other short- and long-term problems? Diseases may be a problem, progressive acidification, or salinity (which may be short term if washed out).
- (6) Is it economic? The ultimate, and often most important question.

These criteria are not exhaustive, but are forward-looking and encompass many of the issues which have to be faced before using any organic material on land.