

## APPENDIX A

### Odour Treatment Techniques

#### 1. Examples of Exhaust Air Treatment

Scrubbers or odour absorbing filters remove the odourous compounds from the exhaust.

! **Biofilters** remove odours by biological action. The biofilter provides a medium for certain odour reducing bacteria to live;

! **Incineration** of odour compounds by passing the air through a flame; and,

! **Anti-odour agents** or masking sprays reduce the nuisance of the odour.

#### 2. Examples of Manure Treatment

##### Aerobic Methods

**Composting** solid manure reduces odours. By mixing or ventilating, oxygen is mixed with the manure. This keeps conditions in the manure aerobic so no odours are produced. Composting can be done simply by turning a pile with a loader or in more complex vessel systems. Composted manure is more stable than untreated manure and can often be sold off the farm as a value added product.

**Naturally aerated lagoons or oxidation ponds** are typically large shallow ponds which rely on surface effect to keep conditions aerobic.

**Mechanical agitation** a liquid manure mixes air with the slurry to maintain aerobic conditions. To properly aerate a storage requires a well designed system of agitation.

**Oxidation** is a form of aeration where a single agitation point is used in a circular ditch to keep air mixed with the slurry.

**Air Injection** into the storage pit will also maintain aerobic conditions and provide agitation.

##### Anaerobic Methods

! **Anaerobic** ponds are one example, where crusting keeps the surface sealed; and,

! **Methane digesters** are another example of anaerobic treatment process where manure is treated in an enclosed vessel at a constant temperature which is ideal for methane production. The methane gas produced can be used as a source of energy. The treated manure has few odours.

##### Other Methods

**Moisture Removal** – By reducing the moisture level, odour production is also reduced.

**Biological/Chemical Control** – Bacterial culture or enzymes are added to counteract the natural odour producing process.

**Chemical Masking** – Chemicals can be added to manure to produce a more pleasant smell.