



D N R

Water



F A C T S

Water treatment Taste and odour control

Do you have these problems?

- water with undesirable colour & taste
- water with an offensive smell

What are the causes?

In the main, taste and odour problems are caused by naturally occurring compounds, not pollution. This is particularly so for on-farm water supplies.

The source of taste and odour in a water can be difficult to track down, but some of the most likely causes in an on-farm water supply are:-

- **Decaying vegetation**
Decaying vegetation such as algae, give rise to grassy, fishy or musty odours. Dying algae may cause offensive odours and some living algae cause taste and odour problems.
- **Mould growth**
Moulds may give an earthy, musty or mouldy taste and odour to a water. In stagnant waters, and especially water in long lengths of pipeline left standing in warm surroundings, the moulds have favourable conditions for growth. The first water drawn in the morning may have an unpleasant taste or odour.
- **Iron and sulphur bacteria**
Iron and sulphur bacteria produce deposits which, on decomposition, release an offensive smell.
- **Iron**
Iron above a certain amount will give water a bitter taste.
- **Salt**
Excessive salt will produce a brackish taste.
- **Chlorine**
Chlorine may react with other substances to give what is described as a 'chlorinous' taste.

- **Bacterial pollution**

Decaying animals/birds or septic outfall reaching the water supply will cause taste and odour problems.

- **Silt/clay**

Silt or clay in water will reduce the quality of a water supply.

How are problems prevented?

Sound management practices may avoid the need to treat water for taste and odour control.

- **Practice good catchment management**
Algal growth is promoted by nutrients such as nitrogen and phosphorus which are present in fertilisers and manure. Reducing nutrient runoff into dams is a key to long term control of algae.
- **Exclude light from water supplies**
Algae will not grow in total darkness. A roof over a water tank will control algae.
- **Site dam carefully**
Careful site selection of surface water storages will reduce undesirable inflows, such as soil and nutrients.
- **Take care with septic installation**
Locate your septic outfall away from your water source. Ensure that leakage into water storages will not occur.
- **Protect water bore**
Prevent surface runoff into your water bore to avoid contamination of your water supply.

What treatments are used?

Typical treatment methods for rural water supplies are:-

- aeration
- chlorination

- chemical control
- activated carbon filtration
- flushing of pipelines

Which treatment you use will depend on the water source, the degree of pollution or the extent of the problem and the use for the water. In some cases a combination of these treatments is desirable.

Chemical control

As we have seen, algae are a major cause of taste and odour problems. Algal growth can be controlled chemically.

Water Facts Sheet 'Control of Algae' gives full details of this treatment.

Aeration

Aeration will sometimes improve a water that has a poor taste or is stagnant. It is very useful in getting rid of 'rotten egg' smells found in deep bore water. It may also precipitate iron from solution if it is present in troublesome amounts.

Aeration is seldom effective when tastes are caused by organic pollution.

To aerate your water supply, spray it into the air at the top of a settling tank and/or cascade it over baffles set in a settling tank. Periodic flushing of any sludge formed, via an outlet plug at the bottom of the tank, is advisable.

Chlorination

Water Facts Sheet 'Chlorination of Irrigation Systems' provides details of treatment for algae and iron bacteria in your irrigation system.

Where you are using the water for domestic purposes, it may be necessary to adopt more sophisticated treatments. These treatments require a great deal of experience and care in their application. You should seek further advice before attempting to use them.

Activated carbon filters

These can be used for removal of tastes and organic impurities. They consist of a bed of activated carbon in granular form, and are readily available from commercial water treatment outlets.

Carbon filters are generally the most effective of all methods of removing 'earthy' or 'mouldy' tastes or odours. They are also effective in removing a wide range of complex substances like pesticides and aromatic hydrocarbons.

As well as removing organic compounds they remove micro particles and dechlorinate the water.

These filters can be small disposable cartridge types or they can form part of multi-media systems requiring backwashing for effective operation. They need to be operated and maintained strictly in accordance with the manufacturer's recommendations.

Flushing pipelines

In many instances taste and discolouration problems due to iron etc, come from water which has been left to stagnate in the ends of pipelines. Periodic flushing is one of the commonest methods of preventing such problems.

Is a water analysis necessary?

Before undertaking any form of water treatment a complete water analysis should be carried out.

The correct sampling procedure and where you can have the water analysed is outlined in Water Facts Sheet 'Sampling Your Water Supply'. If present in large numbers, algae should first be identified before undertaking any treatment. The Department will advise you about accredited laboratories which specialise in this service.

Assistance

Assistance with all aspects of your water supply, irrigation or drainage scheme is available from the Rural Water Advisory Services of the Department. Full details of the available services and charges can be obtained from your local Natural Resources office.

Reference

Twort A.C, Hoather R.C & Law F.M. 1974, Water Supply, Edward Arnold, pp. 272-274 ■