Lead poisoning is still the commonest poisoning of cattle reported by NADIS vets, although evidence from NADIS and the veterinary laboratories suggest that it is becoming less common (or, at least, reported less frequently). The peak time of the year for lead poisoning is turnout. Of UK farm livestock, cattle appear to be the most vulnerable to lead poisoning, with calves being the most likely victims. However, lead poisoning can occur in all domestic animals including horses, poultry and dogs. Pigs appear to be the least susceptible farmed species.

The main source of lead in most cases is rubbish. Discarded sump oil, dumped lead batteries, unwanted putty and old paint tins are amongst the commonest sources. In many cases cattle will actively eat these products as they are attracted to the oil or to the taste. Calves often ingest lead while they are playing with discarded rubbish.

Drinking water from lead pipes is often suggested as a possible source of lead poisoning, but cattle do not appear to be susceptible to poisoning by this route.

As the total number of cases of lead poisoning have decreased from over 100 in 1994 to less than 50 in 2001, it has become apparent that there is a significant number of lead poisonings in grazing animals where high concentrations of lead in the soil have been implicated. These outbreaks have mostly been seen in areas where lead has been mined. Feed contamination is also a potential problem, indeed contaminated rice bran from Burma was the primary source of the last major outbreak of lead poisoning in the UK in 1989.

Clinical Signs
The signs of lead poisoning depend very much on the species involved. The description here refers only to cattle

Lead poisoning can be divided into three forms: Acute, where the signs develop rapidly, chronic where the signs develop over a long period, and subacute, which has a time-scale between the first two. The type of disease seen is primarily dependent on the amount of lead eaten, the more that’s eaten the faster the signs develop. (The source of the lead can also affect the signs, but this effect is more complex). Because of their susceptibility to lead poisoning, cattle very rarely develop chronic poisoning

Acute disease
- Sudden death
- Muscle tremors
- Frothing at the mouth
- Colic (stomach pain)
- Head pressing
- Apparent blindness
- Fits
- Aggressive behaviour (particularly adults)
- Death after 12 to 24 hours of the above signs

Subacute disease
- Dull
- Loss of appetite
- Apparent blindness
- Colic
Constipation followed by diarrhoea

Not all cases will show all the signs. In some cases the only presenting will be blindness or other nervous signs. It is thus important to get any animal showing strange blindness or other nervous signs checked by your vet, as they could be lead poisoning.

**Diagnosis**

On clinical signs noted above you can be suspicious of lead poisoning, particularly if a source of lead can be identified. However the signs of many other nervous diseases, including listeriosis, grass staggers and vitamin A deficiency are all similar to lead poisoning, so a veterinary examination can be very valuable. This is especially important for adult cattle as BSE cases can show many of the same vague nervous signs. Also, even if the signs are suggestive of lead poisoning, further testing is necessary to confirm lead poisoning, as there may be food safety implications:

1. Blood lead – will be elevated in ill animals and in many apparently normal animals (unless there is a single small point source of lead). Blood lead measurement can thus show the extent of the problem. However blood lead concentrations decline more rapidly than tissue lead concentrations once the source of lead is removed, so they cannot be used to assess food safety of milk or meat.
2. Tissue lead: Measurement of liver and kidney lead is the gold standard test. This can be done by biopsy, but is best done post-mortem. This is the only way to assess food safety in beef animals.

**Treatment**

Treatment of acute cases is not worthwhile. The disease has usually progressed too far to be treated once signs are seen. Treatment has to begin early if an animal is to be saved. Treatment is complicated, costly and long. It is also NOT effective at eliminating lead faster from affected animals, so cannot be used to make cattle fit for human consumption more quickly.

**Prevention**

In the vast majority of cases lead poisoning can be avoided by good waste management on the farm. Prevention is easier, cheaper and more effective than treatment by a vet. The most important areas for prevention are:

1. Place used motor oil in sealed containers.
2. Keep rubbish out of pastures and other sites that are used by animals.
3. Prevent access by cattle to areas where rubbish is dumped. A single site is far safer than several sites.
4. Dispose of used vehicle batteries carefully. Do not leave them around the farm.
5. Remove all lead paint. If this is not feasible, ensure livestock can’t get access to painted areas.
6. Service farm machinery away from animals.
7. Check all areas carefully before introducing animals to them as most poisonings occur following a change of location. Lead poisoning cases usually increase after turnout in spring when the animals find all the junk discarded over winter.
8. Work with your neighbours to prevent lead poisoning.

If soil contamination rather than rubbish is the cause of your problem, prevention is more difficult and has to be farm-specific. Get advice from your vet and local veterinary laboratory.

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The Meat and Livestock Commission is a sponsor of NADIS (National Animal Disease Information Service), which is a network of 40 veterinary practices and 6 veterinary colleges monitoring diseases in cattle, sheep and pigs in the UK.