Poisonous chemicals and plants can cause sickness and death in goats.

Poisoning is often suspected as the cause of illness when a number of previously healthy goats show similar signs at the same time. The sudden onset of illness soon after goats have had access to unfamiliar feeds, after medication or spraying, or after a change to a new pasture often points to a poison as the cause of illness.

**FINDING THE CAUSE**

Poisons occur in many forms. Examples are industrial waste, chemical sprays and poisonous plants. Many will vary according to climate (plants) or locality (industrial wastes).

To determine the cause of poisoning, the events leading up to it must be ascertained. Search the goats’ surroundings for potential toxic materials, check any drugs used in treatments and note any procedures that differed from normal practice.

Poisons may occur in feedstuffs, the soil or other material. Chemical analysis of these is complicated, costly and time-consuming. Therefore it is important to seek clues to the nature and source of the poison to narrow the possibilities, if analysis seems necessary. Time is imperative, too, as some poisons may disappear quickly, leaving no trace for analysis.

The importance of tissue changes found at a post mortem examination cannot be overemphasised. Many poisons produce characteristic tissue changes, which can lead to a positive diagnosis. A post-mortem undertaken by a veterinarian will also differentiate between poisoning and diseases that produce similar signs.

Recovery of affected goats depends mainly on how soon the goat is treated after ingesting, or coming into contact with the poison. Antidotes are available for some poisons.

**SOME COMMON POISONS**

**Lead**

Lead is one of the commonest causes of poisoning in farm animals. Old paint tins, flaking paint, car batteries, lead shot and sump oil are all potential sources of lead poisoning.

Symptoms: In acute lead poisoning there is depression, loss of appetite, diarrhoea, abdominal pain and nervous signs such as champing of the jaws, loss of balance and epileptic-like attacks.

Chronic poisoning, which results from the continued ingestion of small quantities of lead, causes progressive loss of condition, weakness, blindness and sometimes swelling of the joints.

Treatment: Contact your veterinarian immediately and drench affected goats with 120 g magnesium sulphate (epsom salts). A subcutaneous injection of calcium borogluconate as recommended for milk fever may be beneficial.

**Arsenic**

The most common source of arsenic is products previously used for dipping and spraying of animals to control ectoparasites such as lice.

Arsenic is no longer available as an animal treatment but old tins may still remain on some farms.

Symptoms: Distress develops suddenly. The goat shows severe abdominal pain, restlessness, groaning, an
increased respiratory rate, salivation, grinding of teeth and diarrhoea.

When a goat has been taking in arsenic over a period of time, it may show loss of appetite, loss of condition, loss of hair and weakness.

Treatment: An antidote is available so contact your veterinary surgeon immediately. However, in acute cases, treatment is of little value because of the large amounts of arsenic ingested and the delay between ingestion and appearance of the illness.

As severe dehydration occurs, administer electrolytes both by injection and by mouth. Disturb affected goats as little as possible and ensure that they are provided with shelter from the sun.

**Organophosphates**

Organophosphates are commonly used farm chemicals. They are applied externally for lice and tick control and are used as crop sprays and for treatment of grain to control weevils. These preparations are of low risk if used at the recommended strengths.

Poisoning may result from inadvertent access to concentrated chemical. As with all chemicals, before using, read the directions carefully and observe the precautions described by the manufacturer.

Symptoms: Organophosphate poisoning causes trembling, muscular twitching, stiffness in walking and sometimes excessive salivation, diarrhoea, breathlessness, pinpoint pupils and convulsions.

Treatment: Effective treatment can only be given by a veterinarian.

**Grain poisoning**

When a new type of grain such as wheat, barley, oats or a concentrate mixture is fed to goats for the first time, it must be introduced slowly to the diet over a period of 2 to 3 weeks to avoid grain poisoning. If the goat's rumen is unprepared, large quantities of grain are not digested normally. The grain ferments producing large amounts of lactic acid which causes serious illness.

Symptoms: Abdominal pain, sluggishness, diarrhoea and dehydration are the initial signs of grain poisoning. Severe lameness can occur due to laminitis and goats lose their balance and go down. Dairy goats show a dramatic drop in milk production.

Treatment: A drench of magnesium oxide 15 g or sodium bicarbonate 15 g in half a litre of water twice daily can be given. Other drugs which promote a quick recovery and control laminitis can be given by your veterinarian. Greater amounts of roughage such as hay in the feed allow increased quantities of grain to be tolerated in the diet. Oats, which have a higher fibre content, are less risky, but also must be introduced gradually.

When changing from one grain or concentrate to another, mix increasing proportions of the grain or concentrate being introduced with decreasing amounts of the grain or concentrate previously fed, over a period of one to two weeks.

Preventative feed additives are also available to decrease the risk of grain poisoning when goats are being fed predominately grain diets.

**Plants**

The following common plants, shrubs and trees are known to be poisonous to goats: azalea, avocado, boobililla, camphor laurel, elm, fir, gardenia, green cestrum, laburnum, lantana, lilac, laurel, macadamia, magnolia, noogooora burr, oleander, pine, poison peach, poppies, privet, rhododendron, rhus, sally wattle, variegated thistle, yew and all bulb plants.

If goats are allowed to browse they sometimes try these plants. Hungry goats are more likely to consume large amounts of poisonous plants, especially when they are moved onto a new area. Although some poisonous plants have an unpleasant taste, others are quite attractive to goats.

Herbicide sprays tend to increase the palatability of weeds, so that greater quantities than normal may be consumed by stock. This increases the possibility of poisoning by plants. Withhold goats from treated areas for 1 to 2 weeks.

The toxicity of plants varies according to the season and the stage of the plants' growth. Wilting, and rapid growth after rain, both increase the toxicity of the plant.

Symptoms: Because of the many and varied plant poisons, no specific symptoms can be described here. For detailed information, refer to Poisonous Plants: A Handbook for Farmers and Graziers by E. J. McBarron, available from the NSW Department of Primary Industries' Bookshop.

Treatment: Contact your local veterinarian if you suspect a plant poison. Knowledge of the local plant species and seasonal conditions will enable prompt action to be taken to determine the source of the poison and to implement treatment.

**Nitrite**

Nitrite poisoning can follow grazing on certain plants such as oat crops, variegated thistle (Silybum marianum),
capeweed (*Arctotheca calendula*) and mintweed (*Salvia reflexa*).

**Symptoms:** Severe depression, difficult breathing, abdominal pain, diarrhoea, muscle tremor and weakness, staggering gait and severe cyanosis are typical signs. Affected goats usually go down and can die suddenly.

**Treatment:** The specific antidote is methylene blue. An intravenous injection given by a veterinarian is the most effective method. Prompt treatment is essential if goats are to survive.

**Rat and snail baits**

The numerous products available on the market for use as rat and snail baits can be lethal to goats.

Rat and mouse baits containing dicoumarin as the active ingredient are quite attractive to goats. This is an anticoagulant (stops the blood from clotting) causing animals to die from internal haemorrhaging. Other rodenticides have similar properties.

Snail and slug baits are often prepared in bran-based pellets, making them attractive to all animal species. Symptoms of poisoning by these baits include drowsiness, loss of appetite, constipation, abdominal pain and diarrhoea.

**Summary**

There are many other specific poisons that affect goats. Each case of a suspected poisoning must be dealt with promptly to avoid deaths. Where the source of the poison is not immediately obvious, background information on any managerial changes must be noted.

Where deaths have occurred, these should be examined to confirm a diagnosis of poisoning. A postmortem examination and a review of the history and clinical signs usually leads to a prompt diagnosis.

**FURTHER INFORMATION**

For further information concerning poisons in your area contact your local veterinarian or the NSW Department of Primary Industries.

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**DISCLAIMER**

The information contained in this publication is based on knowledge and understanding at the time of review (July 2004.) However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the NSW Department of Primary Industries or the user’s independent adviser.

**ALWAYS READ THE LABEL**

Users of agricultural chemical products must always read the label and strictly comply with directions on the label. Users are not absolved from compliance with the directions on the label by reason of any statement made, or omitted to be made, in this publication.