

## **AKABANE DISEASE IN CATTLE**

Akabane is a viral disease transmitted by mosquitoes and biting midges that affects cattle and less frequently sheep and goats. It is also commonly known as “curly calf disease” due to the deformities it can cause in foetuses when cows are infected with the virus during pregnancy. The stage of pregnancy during which the cow is infected determines the range and severity of clinical signs seen. Calves infected at 80-120 days of gestation (a cow’s gestation period is approximately 281 days) are usually born alive but are commonly blind, walk poorly if at all and may fail to suck. This is due to a brain condition called hydranencephaly where part of or all of the forebrain does not develop and is replaced by fluid. While some calves appear outwardly normal, some may have domed heads, jaw deformities or shortened muzzles.

Foetuses infected at 120-180 days pregnancy commonly suffer from arthrogryposis with rigid fixation of the limbs (“curly calves”) and sometimes deformity of the spine. These calves frequently cause calving problems due to their abnormal presentation, size and inability to manipulate rigidly flexed limbs. Cows infected towards the end of gestation deliver calves that may appear completely normal but may be inco-ordinated, lack intelligence and are referred to as “dummy calves”. A combination of arthrogryposis and hydranencephaly can be seen in calves that reach full term while abortion and stillbirth of foetuses can also result. Calves born with mild hydranencephaly and “dummy calves” fail to thrive and their condition does not improve with age. While they can be kept alive with intensive feeding assistance generally their survival may prove to be too labour intensive to be economically viable.

The spread of akabane is related to the distribution of the insect vector and the seasonal conditions favouring their spread. As a result, akabane may be seasonal or sporadic especially in areas where the mosquito or midge is not endemic. In areas where cattle are continually exposed to the virus (eg coastal areas where the insect vectors are present all year round), most cattle develop immunity before they become pregnant and few losses are seen. Immunity likely lasts for years and possibly a lifetime. In areas where spread of the insect vector depends on favourable seasonal conditions it is more likely to see clusters of cases of akabane especially in younger cattle who may never have been exposed to the virus before.

There is no treatment for akabane and no vaccine is commercially available. Prevention of the disease is difficult but could be achieved by ensuring breeding females are infected prior to joining and moving cattle from non-endemic areas to endemic areas well before breeding age. However, this is a difficult task to undertake in an area like Glen Innes where outbreaks of akabane are commonly seen only after seasonal conditions that favour the movement of the insect vector from warmer coastal areas. Diagnosis of affected cattle may be useful in differentiating it from pestivirus (Bovine viral diarrhoea virus) which can cause very similar congenital defects and involves testing fluids from the foetus, blood from a calf that has not yet sucked, blood from the cow or histologically examining spinal cord or brain from the calf/foetus.