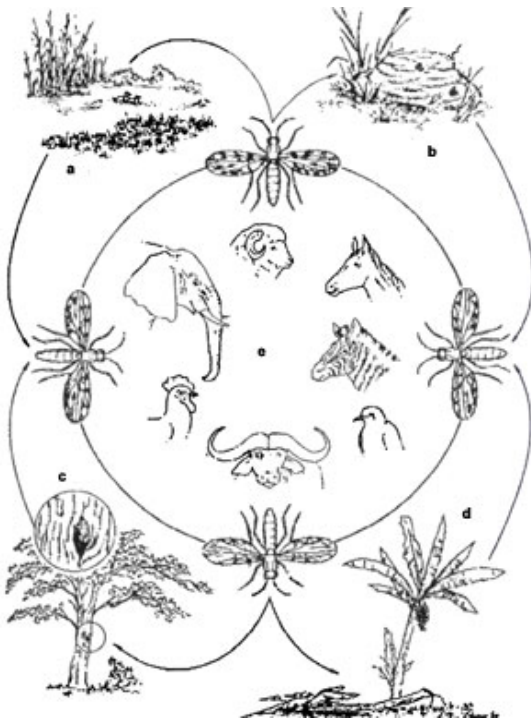


African Horse Sickness is a viral disease of horses, mules and donkeys and is transmitted by culicoides midges. Like the anopheles mosquito, which spreads the plasmodium malaria parasite, the culicoides midge also requires a blood meal from specific host animals in order to develop their eggs. Horses are most susceptible, mules less so, while donkeys and zebra are very resistant. Horses that have recovered from this disease do not remain carriers of the virus. However, like malaria, the virus requires a reservoir host to lie dormant in through the dry winter months. Zebra are thought to be the prime reservoir host, but it can lie dormant in other animals as well. It is therefore the transport of host animals that causes the large scale spread of the virus and the midge merely acts as a carrier from animal to animal over short distances.



Diagrammatic representation of the interaction between *Culicoides* spp. and preferred larval habitat types. Each *Culicoides* spp. requires a specific substrate for the development of its larvae. These larval habitats may be divided into four main types:

- a = surface water and soil interface (organically enriched or not)
- b = dung pats from large game or livestock
- c = tree-holes, plant and rock cavities
- d = rotting plant stems, fruit and fungi
- e = *Culicoides* spp. require the blood of specific host animals in order to develop their eggs

African Horse Sickness does not affect any other animals, except that dogs have occasionally

been fatally infected after ingesting infected horsemeat. The disease is generally more prevalent in low-lying moist areas, such as marshes and valleys. The period between sunset and sunrise, when *Culicoides* midges are most active, is the time when most animals often acquire infection in the open veld. There are three forms of the disease, namely the lung, heart and mixed form. The lung form is recognised by a high fever, difficult breathing and frothy discharge from the nose and is characterised by a very high death rate. The heart form is recognised by a swelling of the head and eyes with only a 50% death rate in horses. In the mixed form of the disease, symptoms of both the heart and lung form could occur. A vaccine is available in South Africa; however, horses in the surveillance zone or sick-free zone may only be vaccinated with the written approval of the Director of Veterinary Services.

The accidental transport of midges in aeroplanes and vehicles can also result in the actual midge transmitting the virus over long distances, providing that she has a blood meal soon after her arrival at her destination. You will note that it is the female that spreads the virus, not the male! Similarly, the accidental transport of mosquitoes can cause the widespread infection of malaria, otherwise known as airport malaria. In other words, an infection can take place at a destination miles away from an infected area simply by the arrival of an infected midge or mosquito via aeroplane or vehicular transport.

Midges can also transmit Rift Valley Fever, Akabane Virus and Bluetongue. *Culicoides bolitinos* and *Culicoides imicola* are the main species involved in the transmission of African Horse Sickness and normally breed in the dung of large herbivores, e.g. cattle dung.

Some scientists believe that the Mpumalanga Lowveld and Zululand areas of South Africa, with their warm winters and abundant game, are ideal environments for the maintenance of arboviral diseases such as African Horse Sickness.

The following points should be considered in the control of *Culicoides* midges.

1. Breeding sites are often created on farms because of poorly constructed or maintained watering points, and the increased use of irrigation in the production of crops may cause further spread and escalation of their numbers.
2. Water leaks, manure and urine are ideal habitats for immature midges.
3. Dung pats, tree holes, rotting vegetation and stagnant surface water are ideal larval habitats, but they can be treated by various chemical methods.
4. As the biological control of midges has little prospect, it is essential that horses be vaccinated against African Horse Sickness.
5. Valuable animals should be stabled at night, as the midges which are active at twilight and at night are not inclined to enter buildings. Wet, low-lying areas are dangerous areas, while dusk and dawn during the mid-to-late summer are dangerous periods.
6. Screening stables with insect gauze or shade cloth treated with pyrethroids, operating light-traps outside stables at night, turning off all internal lights and the use of extractor fans should also be considered.
7. *Culicoides* prefer cattle and will thus feed on cattle rather than horses.
8. One can also prevent the *Culicoides* midge from biting animals by using an insect

repellent, such as Janet Carter's Midge and Mosquito Repellent. This herbal spray contains citronella oil, artemesia, lavender and mint and is effective in repelling midges, mosquitoes, ticks and fleas. Being herbal, it can be sprayed as much and as often as necessary and can be used on your domestic pets as well as for human/personal use. One of the best methods of repelling such biting insects is to spray horses with Janet Carter's Midge and Mosquito Repellent every day before exercising and then again in the evening after stabling. If it is sprayed on the legs, belly and rump of the horse, it will discourage the midge from adhering to the horse's skin and thus passing on the virus. In order to make the contents adhere and spread further over the animal, dilute 50% Janet Carter's Midge and Mosquito Repellent with 50% paraffin or water in a plastic spray bottle.

9. When sprayed in its concentrated form around the brim of a garden hat, pesky flies will be kept at bay. If sprayed around the tops of socks or ankles, it will keep ticks and fleas at bay. When sprayed on exposed limbs or on clothing or bedding, it is most effective at preventing mosquito bites. Janet Carter's Midge and Mosquito Repellent is available from most pharmacies, veterinary supply shops, travel clinics and various camping and outdoor shops. It is available in a 50ml travel size, a 100ml domestic size, a 200ml as well as 1 litre and 5 litre agricultural sizes.