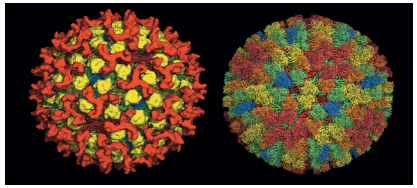
Together to fight infectious diseases



Fight infectious diseases and manage health emergencies is difficult, but it is possible to be prepared for them. There is a need for a continuous and reciprocal exchange of information among veterinary services and farmers.

Epidemic emergencies associated with highly contagious diseases such as AHS require the establishment of a "network" of adequately trained operators who are committed to preventing and surveilling them. Therefore, all professional figures involved in the horse industry and, even before that, the entire livestock industry, should collaborate with veterinarians, both public and private, to establish an integrated surveillance system. Indeed, only through a network that puts farmers at the forefront it is possible to strength the surveillance system for an effective prevention and control of the infectious diseases.

It is therefore a matter of adopting the concept of global health (One Health) which, thanks to the synergistic interaction of all the stakeholders linked to the world of public health and livestock, aims to create an integrated system of collaborations for the prevention of human, animal, and environmental health. The first step to translate this concept into reality is to increase awareness among the livestock industry stakeholders and to provide them with accurate information.

Infectious diseases transmitted by vectors

In recent years, viral infectious diseases transmitted by blood-sucking vectors (arboviruses) have been becoming increasingly important around the world because of the increase in trade and climate change. In Europe the risk of arboviruses spread is also increased by the proximity of the African continent. Currently, there is concern about the possible arrival of African Horse Sickness (AHS) in Europe, because the disease, caused by an Orbivirus, is endemic in Africa.

For this reason, with the aim of providing information for the disease, the Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale" (IZS of Teramo) – as National Reference Laboratory for AHS and as National Reference Centre for Exotic Animal Diseases (CESME) – intends to raise awareness among breeders, riders, and all the people involved in the management of horses, about the risk associated with a possible introduction of AHS in Europe. With this leaflet we aim to raise awareness for a rapid recognition of the disease and, eventually, to develop early warning strategies and procedures to prevent and limit the spread of the disease.

The IZS and CESME

The IZS of Teramo, through its National Reference Centre for Exotic Diseases, provides technical-scientific assistance and specialized consultancy on issues related to the diagnosis and prevention of infectious diseases absent in the national territory, including African horse sickness. The Institute has been working on the production of vaccines for AHS for over a decade. With the experience accumulated in these years of research, a protocol has been developed to produce safe, effective inactivated vaccines capable of protecting animals from the disease for at least 18 months. All antigens produced so far by the IZS of Teramo, together with the protocols and production procedures, will be promptly made available in case a large-scale production of vaccines for AHS is necessary.

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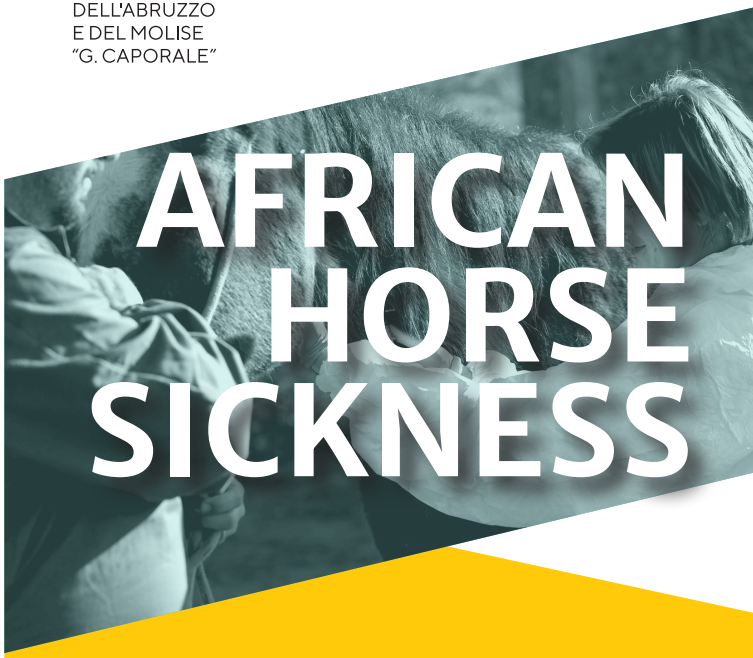
in collaboration with

Federazione Italiana Sport Equestri



AFRICAN HORSE SICKNESS

AWARENESS AND PREVENTION

Developed in collaboration with the Italian Ministry of Health – General Directorate of Animal Health and Veterinary Drugs – as part of the Strategic Project IZS AM PS/19 RC entitled: "Social Network Analysis and innovative diagnostic methods for the control of movements and infectious diseases of horses in Italy".

What is AHS?

African Horse Sickness is a serious viral disease, characterized by a hight mortality rate of 95%, that affects all species of equids, including horses, donkeys, and zebras. The disease is caused by the African horse sickness virus (AHSV), which is not transmitted directly from an infected animal to another. Instead, AHSV is transmitted by blood-sucking midges belonging to the genus Culicoides. These midges are most active during the warmer months of the year; thus, AHS is a seasonal disease and is linked to the reproductive cycle of the insects. There are nine different serotypes of AHSV, which have limited cross-reactivity with each other. Therefore, horses that has been vaccinated against one serotype of AHSV will not be protected against other serotypes.

Acute pulmonary form with the presence of foamy nasal discharge

Superorbital edema

Swelling of the superorbital fossa with hemorrhagic edema

Chest edema

How to recognize AHS?

The disease can vary depending on the strain of the virus that is involved and host susceptibility. Clinical signs are mainly the result of the circulatory and respiratory systems damage, and symptoms may include:

- Fever (39-41°C / 102-106°F) and profuse sweating
- Difficulty breathing, spasmodic coughing, nostrils dilated with nasal foamy discharge
- Swelling caused by oedema of the supraorbital fossa, eyelids, head, neck, chest, or shoulders
- Redness of the conjunctiva and haemorrhagic petechiae on the gums and mucous membranes.

Although the clinical signs and lesions of the disease can be considered characteristic, they can be confused with those of other equine diseases such as: infectious equine anaemia, equine viral arteritis, anthrax, trypanosomiasis, and equine encephalitis.

Disease diagnosis and prevention

The suspect of the disease occurrence is based on the detection of the characteristic clinical signs, pathological lesions, and the presence of competent vectors. Laboratory diagnosis for confirmation of AHS is essential and is carried out by identifying and characterizing the viral genome using molecular tests (RT-PCR and RT-qPCR) or new generation sequencing tests, and viral isolation. Serological tests (competitive ELISA and Serum Neutralization) are useful for identifying animals that have survived the disease, those that have been vaccinated, or in case of outbreak to identify the viral serotype and thus allow targeted vaccination campaign. Currently, there are no antiviral drugs that can cure AHS, and only symptomatic treatment of the disease is possible. The prophylaxis consists of live attenuated vaccines produced and distributed in Africa (Onderstepoort Biological Products, Onderstepoort, South Africa) and inactivated vaccines, but the live attenuated vaccines are currently not authorized in Europe.

What to do in case of suspected AHS

African horse sickness is considered to have a "significant risk of spread" and, according to Regulation (EU) 2016/429 and Commission Implementing Regulation (EU) 2018/1882, belongs to category A, D, and E. This mean that, if the disease is detected in Europe, immediate adoption of eradication measures such as quarantine, vector control, and vaccination of all animals are required. In case of disease suspect, it is necessary to immediately contact the local competent Veterinary Services. In the meantime, and to prevent further spread of the disease, owners/keepers of animals are advised to

Apply insect repellent products to animals

Keep animals indoors from evening to the following morning

Do not transport animals

Protect stables with insect nets and use insecticides in the premises