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Animal Health
Fact Sheet

BLUETONGUE IN CATTLE

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Bluetongue (BT) is a viral disease that is spread mainly by one specific type of gnat. Other gnats and blood sucking insects may occasionally transmit BT, but they are much less important in its transfer. Cattle are the main reservoir for overwintering of the virus in temperate climates. The gnats become infected from cattle and then spread the disease to other cattle and sheep as they take blood meals. It is also spread through infected semen and may be spread by blood sucking lice and a soft tick. It is possible that biting flies and contaminated needles may also spread it mechanically.

STRAINS OF VIRUS

There are 21 strains of BT virus that have been identified worldwide. Five are present in the United States: #2, 10, 11, 13, and 17. The predominant strains that have been identified in the western U.S. are types #11, 13, and 17.

CLINICAL SIGNS

Bluetongue is usually a much more serious disease in sheep than in cattle. A closely related virus causes epizootic hemorrhagic disease (EHD) in deer. The fatality rate is very high for this virus in deer but its effects on cattle and sheep are relatively mild.

There is still disagreement as to the extent of the clinical effects of BT in cattle. Some researchers feel it is a common cause of disease problems and others say it is only rarely a problem. It is generally accepted that in the majority of infected adult cattle the signs are unapparent.

There are considered to be three different clinical manifestations of BT in cattle:

1. Reproductive effects including abortion, infertility, mummification, and stillbirth.
2. Congenital defects with weak or dummy calves, deformed legs and feet, blind, persistent covering of the gums over the front teeth, overshot lower jaw, and white-eye. The most susceptible period for the fetus to become infected is 60–140 days of pregnancy. Those affected later may still become latently (persistently) infected.
3. Persistently (latent) infected cattle with a hypersensitive reaction. These animals have apparently been previously infected with one strain of the virus but show no evidence until they are reinfected with it or another strain. The resulting disease condition may be moderately to extremely severe. Some of the signs identified include ulcers of the mouth, nose, esophagus,

trachea and rumen; lameness with an inflammation of the top of the hoof, laminitis, and hoof cracks; inflammation of the skin with loss of hair, sloughing of patches of skin, presence of an exudate and crusts on the skin surface, a burned muzzle, ulcers on the teats and udder; muscular stiffness; shallow rapid respiration with excessive salivation in stringy, long strands; and a swollen, protruding tongue. The temperature may be 106 degrees F.

SEASONALITY

Bluetongue is usually seen from midsummer until shortly after the first hard frost, when the gnats are inactivated. The congenital defects would not become evident until calving time. In areas with a mild winter climate, the gnats may be active year-round and the disease could appear anytime.

DIAGNOSIS

Blood tests for antibodies are available for BT. A blood sample collected from a suspect affected calf, prior to it nursing can be diagnostic. The virus can also be isolated from heparinized blood and tissues, but this is a very time consuming effort and only a few laboratories attempt it. Freezing of tissues is detrimental to the BT virus and may make those tissues of no value for virus isolation.

Other diseases that must be considered include BVD, IBR, vesicular stomatitis, mycotic stomatitis, and the foreign diseases of foot and mouth disease and rinderpest.

EXPORT

Many countries require a negative blood test for BT before the animal may enter. This must be considered and additional animals prepared and tested in order to allow for removal prior to export of those that test positive. Actually, many animals that test negative may actually carry the virus, but so far that fact is largely ignored in the export system. Some countries may not accept animals from areas where BT has been diagnosed.

PREVENTION

There is no BT vaccine currently available for cattle. One is available for use in sheep (for type # 10). Use of a vaccine in cattle would further complicate the issue of positive blood tests and may well prevent export of those vaccinated.

Some control of gnat populations may be gained by draining stagnant water areas getting rid of puddles and muddy, debris filled water areas. The use of insecticides on these areas may also be of some help. Periodic spraying of the animals may be of very limited benefit. The gnats feed primarily in early morning and evening and do not enter buildings, so housing of the cattle except during the sunlight hours of the day may be of benefit in certain situations.

Caution must be used with the use of needles on multiple animals in bluetongue areas, and with equipment used for castration, dehorning, etc., to avoid spread of blood and the virus by these instruments.

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