Bluetongue (BT) is a viral disease that is spread mainly by one specific type of gnat. Other gnats and bloodsucking insects may occasionally transmit BT, but they are much less important in its transfer. Cattle are the main reservoir for overwintering the virus in temperate climates. Infection occurs when gnats, after feeding on infected cattle, continue their blood meals with other cattle and sheep. Bluetongue can also be spread by blood-sucking lice, soft ticks, biting flies, contaminated needles, and infected semen.

There are 21 strains of BT virus that have been identified worldwide. Five are present in the United States: types 2, 10, 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 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, others say it is a rare problem. It is generally accepted that in the majority of infected adult cattle, the signs are inapparent. 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, blindness, 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 to 140 days into the pregnancy. Those affected later may still become latently (persistently) infected.
3. Persistently (latent) infected cattle with a hypersensitive reaction. Though apparently infected earlier, these animals show no evidence of illness until they are reinfected by the initial strain of the virus or by a second strain of the virus. 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 saliva in stringy, long strands; and a swollen, protruding tongue. The temperature may be 106°F.

**Seasonality**

Bluetongue is usually seen from midsummer until shortly after the first hard frost, when the gnats become inactive. 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 calf before it has nursed

can be diagnostic. The virus can also be isolated from
heparinized blood and tissues, but this is a time-consum-
ing 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 before export of those that test posi-
tive. Actually, many animals that test negative may actu-
ally 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 vac-
cine in cattle would further complicate the issue of posi-
tive blood tests and may well prevent export of those
vaccinated.

Some control of gnat populations may be gained by
draining stagnant water areas and getting rid of puddles
and muddy, debris-filled water areas. The use of insecti-
cides 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 equip-
ment used for castration, dehorning, etc., to avoid
spread of the virus by the blood on these instruments.

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