



# Cattle Producer's Handbook

Animal Health Section

640

## “Cancer Eye” — Its Treatment and Prevention

*Larry Foster, Extension Beef Cattle Specialist  
New Mexico State University*

Bovine ocular squamous cell carcinoma, commonly called “cancer eye,” is one of the more serious problems faced by ranchers today. Although the disease occurs in several breeds and some cross-bred animals, Herefords are most commonly afflicted. The cause of the disease is unknown. Genetic predisposition of the Hereford breed, together with prolonged exposure to ultraviolet light in the sunny climates of the West, appear to be contributory factors, however. Presently, cancer eye comprises about 80 percent of all tumors reported at slaughter and is the leading cause of carcass condemnation with losses approaching \$20 million per year in the U.S. alone.

Various forms of therapy have been developed to treat cancer eye including traditional surgery, cryosurgery (freezing the tumor, hyperthermia (heating the tumor), radiation, and immunotherapy. The effectiveness of each of these treatments depends on the location of the tumor and whether it has invaded the underlying structure. Normally, tumors in the eyelid metastasize or spread more quickly than those on the eyeball itself. Tumors on the eyeball tend to grow out from the surface rather than go in.

Traditional surgery, which involves excision of the tumor via lid resection and/or enucleation (removal of the eyeball), does not always cure the disease. Normally, a 40 to 50 percent recurrence can be expected. Additionally, cancer may have spread to the draining lymph nodes of the lesion (under the ear and jaw) before surgery and will continue to grow. A visible lump below the base of the ear usually indicates an invasion of the lymph system. Animals with this condition will be condemned at slaughter. Thus, a one-eyed cow presented at slaughter is always suspect for cancer.

Hyperthermia and cryosurgery can be more useful than traditional surgery if treatment occurs before the tumor has invaded underlying structures. These methods can usually save the eye. If extensive invasion has occurred, traditional surgery should be the treatment of choice. Radiation has not proven to be practical in the treatment of cancer eye, and immunotherapy is still in the experimental stage.

Hyperthermia can be accomplished by two methods. The older method uses a unit that cauterizes or burns off the tumor. This method requires the services of a veterinarian since a Peterson block (injection to anesthetize the eye) must be given. It also usually leaves a scar on the surface of the eye, affecting vision.

The second method uses a localized current field (LCF) of radio frequency energy to heat the tumor. Since cancer cells have a large nucleus, they are more susceptible to heat than are healthy cells with a small nucleus. This method heats the cells to the point that the cancer cells are destroyed while leaving healthy cells intact. This method has two advantages. First, little scarring occurs on the eye surface, and the animal normally recovers full sight. Second, no injections are required so a rancher can use the unit with a little training. Results from New Mexico and Texas show that 90 to 95 percent of eyeball tumors are successfully removed by this method provided that the tumors are not too extensive initially. Treatment of eyelid tumors are less successful — about 60 percent.

Cryosurgery (freezing with liquid nitrogen) can be successful on small tumors but it also leaves a scar on the surface of the eye and requires a veterinarian to do it.