

# Photosensitization of Livestock and Deer in Texas

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## WHAT IS PHOTSENSITIZATION?

Photosensitization which is commonly called "photo" is a noncontagious disease seen in all animals, including man, caused by the presence of a photo-dynamic agent in the skin that sensitizes the skin to sunlight causing a sunburn. Cattle, sheep, goats, horses, swine, and white-tailed deer grazing certain improved pasture and range forage under specific conditions may be affected by one of two different kinds of photo. In the case of primary photo, the photodynamic agent in the blood of the skin is a chemical compound not normally ingested by the animal which is absorbed directly from the digestive tract and not completely excreted or detoxified by the liver. In the case of photo due to liver damage (hepatic), a product of chlorophyll digestion called phylloerythrin, which is normally absorbed from the digestive tract and excreted in the bile, reaches the blood in the skin due to dysfunction or damage to the liver. Although primary photosensitized animals seldom die, resultant weight loss, damaged udders, refusal to allow the young to nurse, and with the occurrence of potential secondary infections, appreciable economic losses can occur. Common causes of damaged liver are grazing toxic plants and moldy hay or forage and infections due to liver flukes.

Plants known to cause primary photosensitization include the following: *Cooperia pedunculata* (rainlily), *Polygonum persicaria* (ladies-thumb), *Hypericum perforatum* (St. John's wart), *Eriogonum* sp. (wild buckwheat), *Ammi majus* (Bishop's weed), and *Thamnosma texana* (Dutchman's britches). Plants known to cause hepatic photosensitization include the following: *Agave lechuquilla* (lechuquilla), *Nolina texana* (sacahuista), *Lantana camara* (lantana), *Tribulus terrestris* (puncturevine), *Kochia scoparia* (kochia), *Panicum coloratum* (kleingrass), *Heliotropium* sp. (turnsole), *Phyllanthus\_abnormis* (abnormal leafflower), and fungus on plant material.

## WHAT ARE SIGNS OF PHOTSENSITIZATION?

In sunlight the light-skinned areas on various livestock species, breeds, crosses, and sexes such as eyes, ears, nose, lips, udder, vulva, and lower legs become yellow to red in color. Animals become extremely sensitive to sunlight and spend most of the daytime under shade. grazing only during early or late hours or at night. Weight loss may result from lowered forage intake. Close observation of the animals is necessary to detect the presence of symptoms. Additional signs are kicking, scratching, switching of tail and head. rubbing against objects. licking and biting the affected parts. eyes tearing. and tongue wallering.

If exposure to sunlight continues the reddened areas may ooze a yellowish fluid and form crusts affected areas may blister and peel, skin and hair may slough off, and eyes may turn blue to cloudy with blindness and the animals may become lame. If the udder is affected, becoming scabby and sore, a lactating cow may keep her calf from nursing. Dark-skinned animals are affected and may show weight loss decreased forage intake, cloudy eyes, and teat sores typically not observed on good condition, native perennial grass ranges, with abundant forage growth and appreciable ground cover.

#### WHEN DOES PHOTSENSITIZATION OCCUR?

Photo may occur at any time, but outbreaks of primary photo in spring and summer are large and more serious. Most outbreaks studied in the southeastern part of Texas have occurred within two weeks after rains followed by rising temperatures. In the cases of primary photo, the pastures had been grazed short and annual grasses and weeds had made rapid growth. The combination of drought, rainfall, temperature, and rapid growth usually prompts photosensitization in South and East Texas. Primary photo is typically not observed on good condition, native perennial grass ranges, with abundant forage growth and appreciable ground cover.

When animals consume large quantities of new watery green plant material without dry roughage, their bodies become upset and the toxic photodynamic agents are not eliminated. A few animals to an entire herd of livestock or deer may become affected at one time.

#### WHAT IS THE TREATMENT OF PHOTSENSITIZATION?

Early detection of symptoms is the key to minimizing effects of the disease on the animal. No specific drug will prevent the occurrence of photosensitization after a photodynamic agent is eaten. The symptoms must be treated as they appear. At their appearance the diseased animals should be removed from the pasture, placed in the shade, and given dry feed. Animals in this condition are subject to secondary infections. If the animals have blistered or peeled, the affected parts should be painted or sprayed with a two percent methylene blue water solution or any other nontoxic water soluble dye. The methylene blue solution prevents rays of the sun from penetrating the skin.

The toxic effect appears to last only a few days on closely grazed, poorly conditioned, native pastures in Texas, but photo may recur with subsequent rainfall followed by warm weather. It appears that when the annual grasses have stopped quick growth and contain a higher content of fiber, the toxic effects of the plants are minimized. On cured moldy common Bermuda grass pastures in Texas, it is not known how long the toxic

effect will last. When the new growth has attained the height where cattle graze only the new forage and not the moldy material with the new growth, the toxic effect seems to stop.

#### WHAT IS THE PREVENTION FOR PHOTOSENSITIZATION?

The time of year during which photo may occur cannot be predicted definitely. When there has been an outbreak, the operator should record the conditions and note pastures under which it occurred and prepare for future outbreaks. A reserve of good-quality roughage to be fed during outbreaks is advisable. When the lush green pastures have to be grazed following dry periods, feed ample dry roughage so that the animals will have an adequate balance of forage for proper rumination. After the lush green forage has attained sufficient growth to contain fiber, the feeding of hay may be discontinued, but continue monitoring animals for the appearance of photo symptoms. On native pastures in poor condition, defer grazing during the growing season to improve the pasture forage condition and promote the establishment and growth of better perennial native grasses. In all areas subject to photosensitization, proper stocking and moderate utilization to improve the native forage are recommended.

On improved common Bermuda grass pastures, practice rotation grazing to obtain proper use of pasture forage. Growth not needed for grazing should be baled or stored as a feed reserve. Photosensitization may develop when moldy hay is fed. The removal of animals from the cured common Bermuda grass pastures at the critical growth period in the spring may be necessary. Good range and pasture grazing management practices should help to alleviate the problem of photosensitization.

If you would like to have further information, please contact your county Extension agent-agriculture or your local veterinarian.

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