Texas Agricultural Extension Service

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# Primary Photosensitization of Livestock and Deer Caused by Grazing Rain Lily

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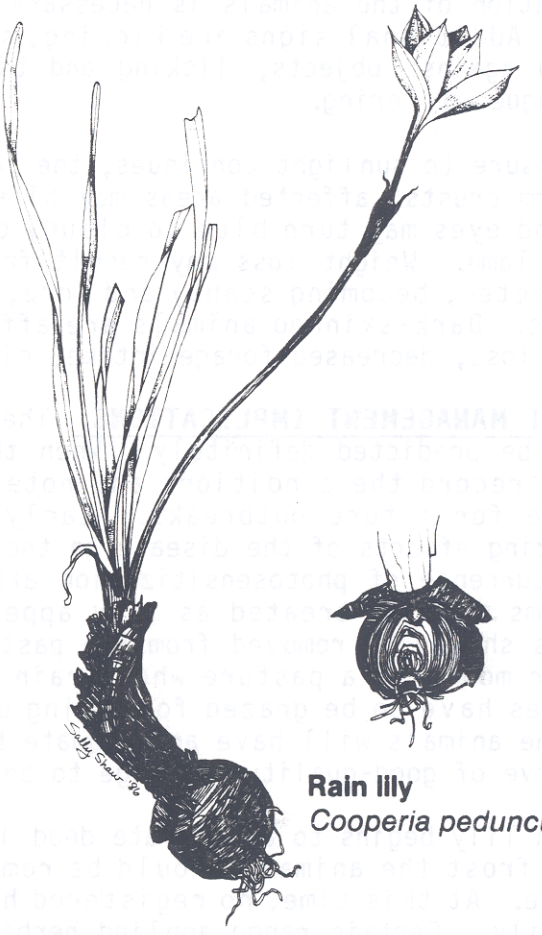
Rain lily (Cooperia pedunculata) has recently been demonstrated in laboratory feeding studies as a cause of primary photosensitization. A photodynamic agent has been isolated from the dead leaves of rain lily which may be contributable to the problem in South and South Central Texas. Primary photosentization has been reported from DeWitt, Gonzales, Lavaca, Wilson, Goliad, and Wharton and other counties for the past 70 years. Although livestock and deer deaths are not reported, appreciable economic losses have occured from this disease.



**Rain lily**
*Cooperia pedunculata*

## WHAT IS PRIMARY PHOTOSENSITIZATION?

Photosensitization which is commonly called "photo" is a noncontagious disease caused by the presence of a photodynamic 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 pastures and range forage under specific conditions may be affected. 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. Photosensitization may also occur following skin contact with a photodynamic agent.

## WHAT IS RAIN LILY PHOTOSENSITIZATION?

Photosensitization from rain lily occurs from the ingestion or contact with dead leaves of the plant. Livestock and deer consume the dead leaves incidentally while grazing palatable or available grasses and forbs. The leaves of the rain lily, which are 6 to 12 inches long, are found intertwined with the forage to be consumed. Field observations indicate that rain lily is consumed by accident.

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**WHAT IS RAIN LILY?** Rain lily is a member of the Amaryllis family and grows from a bulb which is the size of a small onion. This plant is commonly called "rain lily", "giant rain lily", "prairie rain lily" "field lily" and fairy lily". The bulb may be up to 12 inches below the soil surface. The leaves are fleshy strap-shaped, 6 to 12 inches long, 1/4 to 1/2 inch wide, hairless, and succulent-like. The plant blooms shortly after rains in the spring and summer. The unbranched flower stalk is usually 5 to 9 inches in height, supporting a single, white, six petaled, trumpet shaped flower measuring 2 inches across. Documented distribution of the plant is in 32 counties in South and South Central Texas.

**WHAT ARE SIGNS OF RAIN LILY PHOTOSENSITIZATION?** In early stages, 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. Close observation of the animals is necessary to detect the presence of signs due to photo. 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 causing blindness, and the animals may become lame. Weight loss may result from lowered forage intake. If the udder is affected, becoming scabby and sore, a lactating cow may keep her calf from nursing. Dark-skinned animals are affected by photo, but they may only show weight loss, decreased forage intake, cloudy eyes, or teat sores.

**CURRENT MANAGEMENT IMPLICATIONS:** 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. 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 or moved to a pasture where rain lily does not occur. When 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. A reserve of good-quality roughage to be fed during outbreaks is advisable.

If rain lily begins to accumulate dead leaves, whether from natural turnover or from a frost the animals should be removed from the pasture, as a preventive measure. At this time, no registered herbicides are known for the control of rain lily. Certain range applied herbicides will top kill the plant, but the dead material may cause photosensitization.

This information is provided by the Photosensitization Task Force through the interdisciplinary efforts of the Texas Agricultural Extension Service, Texas Agricultural Experiment Station, USDA Veterinary Toxicology and Entomology Research Laboratory, and Texas Veterinary Medical Diagnostic Laboratory.

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



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