

# Kochia Toxicity

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*Kochia in midsummer.*

Kochia (*Kochia scoparia*), also known as fireweed or summer cypress, is an escaped ornamental plant that now grows throughout much of the United States. It is particularly well-suited to the semiarid climate of western Kansas and similar areas because of its drought resistance, disease and insect resistance, and alkaline soil pH tolerance. It usually has good forage value, often containing from 11 to 22 percent crude protein, depending on soil nitrogen content and stage of maturity at the time of grazing initiation or harvesting as hay. It has been nicknamed “poor man’s alfalfa.”

Well-managed kochia grazing or feeding of timely harvested kochia hay usually results in good livestock performance. But various toxicity problems may occur with both harvested and grazed plants if kochia plants are allowed to grow more than 18 to 24 inches tall or begin to develop seedheads; plants are drought-stressed shortly before grazing or haying occurs; or insufficient cattle are placed in the field to keep kochia grazed below recommended heights.

Shortly following periods of drought stress, usually as plants approach maturity, nitrate toxicity may occur in livestock. Oxalate accumulations as high as 6 to 9 percent are not uncommon in nearly mature green plants. Oxalates absorbed into the circulation bind with calcium to form insoluble calcium oxalate. If consumed rapidly and in very high quantities, ingestion can lead to hypocalcemia. A more common problem is the accumulation of calcium oxalate crystals in the kidneys, which causes kidney failure. An unidentified toxin can cause liver failure in cattle, sheep, and horses.

These problems typically have occurred when animals have been moved from overgrazed or drought-limited native pasture and onto a postharvest wheat field, old corral, or drylot where kochia plants have grown up and appear to be a ready source of forage for hungry livestock. Toxicity becomes especially problematic if the diet is almost exclusively kochia and animals have been consuming it for more than 30 to 60 days.

One of the first signs often reported with oxalate-induced kochia toxicity is increased water consumption, because kidney function is altered by the toxin. This probably will not be noticed unless a producer is hauling water to livestock and

notices a sudden increase in water needs. Another common sign is photosensitization as a result of liver failure. This appears as sunburning, particularly of lighter-skinned animals, or white patches of skin on multicolored animals. Skin that is unprotected or poorly protected by hair, such as around the eyes and the udders of dairy cattle, are usually most severely affected.

If either of these signs is noted, remove animals immediately from kochia fields or stop feeding kochia hay and give animals access to high-quality feedstuffs. Many animals that are not visibly affected will recover, but some of the more severely affected animals may die as a result of kochia toxicity.

## References

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