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Review of *Toxic Plants of North America* by George E. Burrows and Ronald J. Tyrl

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Toxic Plants of North America. George E. Burrows and Ronald J. Tyrl. Ames: Iowa State University Press, 2001. vi+1342 pp. Illustrations, maps, glossary, bibliography, index. \$174.99 cloth.

During the spring of 1884 the livestock industry in Kansas was faced with financial ruin when a veterinarian diagnosed foot and mouth disease (FMD). The highly contagious FMD was widespread in parts of the US, and an outbreak in Kansas would have resulted in quarantine for the state's beef, swine, and sheep herds. Experts later determined that the correct diagnosis was non-infectious ergotism, caused by ingestion of prairie hay (primarily *Elymus* spp.). The panic and turmoil surrounding the ergotism incident

launched subsequent investigations into poisonous plants by the newly-formed Bureau of Animal Industry within the Department of Agriculture.

In 1911 L. H. Pammel of Iowa State University published the first important book on toxic plants in the US. Pammel's contribution was followed by John Kingsbury's 1964 classic, *Poisonous Plants of the United States and Canada*. The information in Kingsbury's classic is now outdated, however, and there has been a growing need for another comprehensive reference. *Toxic Plants of North America* fills that need well. Primary author George Burrows, a veterinarian and toxicologist at Oklahoma State University, has conducted research and published extensively on poisonous plants for many years; co-author Ronald Tyrl is a professor of botany at OSU. The book had its genesis in publications written for Oklahoma and the Southern Great Plains, but geographically it covers toxic plants from Mexico north into Canada, including information on toxic native and introduced rangeland and pasture plants. Ornamental (i.e., home and garden) plants troublesome to pets are also included.

Each chapter focuses on the toxic genera and species within one botanical family. The text provides detailed information on taxonomy, distribution and habitat, disease problems, disease onset, clinical signs, pathology, and treatment. A second column on each page cleverly and succinctly shows key points such as summaries of clinical symptoms, line drawings of the plant, distribution maps, and major chemical structures. This attractive format provides the reader with either a quick perusal of the salient points, or a more in-depth discussion of the toxic effects, diagnosis, and treatment. One of the volume's major strengths is the comprehensive list of references at the end of each chapter, including current research literature for each plant.

The Great Plains has numerous toxic plants that cause serious livestock losses. Among those given excellent coverage in the book are ground-sels and hound's-tongue (*Senecio* and *Cynoglossum* spp.—liver damage and photosensitization), locoweeds (*Astragalus* and *Oxytropis* spp.—neurological damage), nitrate-containing plants (e.g., *Sorghum* spp., *Amaranthus* spp., *Kochia* spp.), nightshades (*Solanum* spp.—neurological and digestive toxicity), and milkweeds (*Asclepias* spp.—digestive and neurological toxicity). Also covered are the noxious knapweeds (*Centaurea* spp.) and leafy spurge (*Euphorbia* spp.), genera that are potentially toxic to animals.

Toxic Plants of North America, published approximately a hundred years after the beginnings of research into toxic plants in the US, is an up-

to-date and comprehensive volume that will become the standard reference manual on poisonous plants for veterinarians, extension agents, educators, and animal and range scientists dealing with periodic toxic plant problems. The book will also be of considerable interest to ranchers, farmers, herbalists, and other lay persons seeking further knowledge about toxic plants and prevention and treatment of poisoning. **James A. Pfister**, *USDA-ARS Poisonous Plant Research Laboratory, Logan, Utah.*