1-1-1971

Poison sedge can kill stock

M E. Nairn
T. E. H. Aplin
D. S. Petterson
A. J. Brighton

Follow this and additional works at: https://researchlibrary.agric.wa.gov.au/journal_agriculture4
Part of the Animal Experimentation and Research Commons, Plant Pathology Commons, Sheep and Goat Science Commons, and the Toxicology Commons

Recommended Citation
Available at: https://researchlibrary.agric.wa.gov.au/journal_agriculture4/vol12/iss2/6

This article is brought to you for free and open access by Research Library. It has been accepted for inclusion in Journal of the Department of Agriculture, Western Australia, Series 4 by an authorized administrator of Research Library. For more information, please contact jennifer.heathcote@agric.wa.gov.au, sandra.papenfus@agric.wa.gov.au.
IMPORTANT DISCLAIMER

This document has been obtained from DAFWA's research library website (researchlibrary.agric.wa.gov.au) which hosts DAFWA's archival research publications. Although reasonable care was taken to make the information in the document accurate at the time it was first published, DAFWA does not make any representations or warranties about its accuracy, reliability, currency, completeness or suitability for any particular purpose. It may be out of date, inaccurate or misleading or conflict with current laws, polices or practices. DAFWA has not reviewed or revised the information before making the document available from its research library website. Before using the information, you should carefully evaluate its accuracy, currency, completeness and relevance for your purposes. We recommend you also search for more recent information on DAFWA's research library website, DAFWA's main website (https://www.agric.wa.gov.au) and other appropriate websites and sources.

Information in, or referred to in, documents on DAFWA's research library website is not tailored to the circumstances of individual farms, people or businesses, and does not constitute legal, business, scientific, agricultural or farm management advice. We recommend before making any significant decisions, you obtain advice from appropriate professionals who have taken into account your individual circumstances and objectives.

The Chief Executive Officer of the Department of Agriculture and Food and the State of Western Australia and their employees and agents (collectively and individually referred to below as DAFWA) accept no liability whatsoever, by reason of negligence or otherwise, arising from any use or release of information in, or referred to in, this document, or any error, inaccuracy or omission in the information.
POISON SEDGE CAN KILL STOCK

POISON SEDGE was first suspected of being toxic to livestock in Western Australia nearly 80 years ago. Sudden deaths of sheep grazing areas on which poison sedge grew have been reported from many regions from Geraldton to Scott River. This article reports a case of poisoning in the field, and the experimental reproduction of poison sedge toxicity in pen-fed sheep.

Poison sedge (Schoenus asperocarpus) is a tussocky grass-like sedge, with a strong fibrous rooting system. Each clump is 2 to 3 inches across at the base. The leaves are very narrow, almost thread-like, up to 10 in. long, erect, dark green and smooth. The expanded leaf bases form sheaths which are obtusely lobed at the top and chestnut to reddish brown.

The flowering stalks or culms of poison sedge are longer than the leaves, from 15 to 18 in. long, with partial inflorescences or flower clusters borne alternately along the upper part of the culm. Each flower cluster or spikelet is enveloped by shiny brown


Poison sedge with flowering stalks. The rough seeds are borne on a zig-zag axis. When not in flower poison sedge may be recognised by the reddish brown, expanded leaf bases.
Massive accumulation of fluid in the thoracic cavity of a sheep which died after eating 500 grams (about 18 oz.) of poison sedge.

bracts, which, like the leaf sheaths, are obtusely lobed at the top. When these bracts are removed the axis of each spikelet is seen to have a zig-zag appearance. The pale rounded seeds are somewhat rough in texture and are borne on this zig-zag axis.

Poison sedge grows in both siliceous and calcareous sands from the Murchison River in the north to the Scott River in the south. It has also been recorded in the Salmon Gums district, south of Kalgoorlie. It favours slight depressions where a certain amount of sub-surface moisture may be present during the summer. It is usually associated with sand heath formations, containing occasional tall shrubs and trees, or with stunted forests.

Poison sedge is a short-lived perennial which usually sets seed in its second year of growth. It is most commonly seen after fires or after the land has been cleared. It may be eradicated by normal clearing and cropping methods and is rarely present in established pastures.

Farm deaths

In March, 1970, 210 of 1,000 sheep were found dead on a Scott River property within a few days of being allowed access to newly cleared land containing poison sedge. In some animals there was evidence of acute respiratory difficulty before death. Forced exercise of sheep showing depression resulted in laboured breathing and death.

Post-mortem examination of carcasses revealed large amounts of pale yellow fluid in the thoracic cavity. This fluid tended to clot readily upon exposure to air, indicating that it contained a high level of the plasma protein, fibrinogen. The trachea and bronchi in most animals were filled with large quantities of frothy fluid and the lungs were wet and heavy due to the accumulation of fluid (oedema). There were no signs of damage to other organs.

Feeding trials

Because poison sedge was suspected of killing the sheep, plants were taken to the Animal Health Laboratory for a pen feeding trial and chemical analyses. The leafy parts were coarsely chopped and weighed amounts fed to two 2-tooth Merino wethers. One animal died within 24 hours, after eating 285 grams (about \( \frac{1}{2} \) lb) of poison sedge. The second wether died after eating 500 grams (just over 1 lb) of poison sedge over 30 hours. Neither animal showed marked respiratory difficulty before death but post-mortem examination revealed frothy fluid in the trachea and massive accumulation of fluid in the thoracic cavity. The experimental disease was therefore considered identical to the field cases.

Chemical investigation

Plants were tested for the more common natural compounds which may cause such rapid death. These included cyanide (prussic acid), long thought to be the toxic agent in sedge; fluoroacetate, the toxic principle of \textit{Gastrolobium} and \textit{Oxylobium} species; and alkaloids, which can cause a variety of symptoms before death.

None of these was detected.

Poison sedge plants were still toxic after three days' storage, which suggests that cardiac glycosides, such as those found in the foxglove plant, are unlikely to be the toxic agent in poison sedge.
Other common poisons tested for were oxalates, nitrates and nitrites, none of which was detected.

Following a case of suspected poison sedge toxicity at Carnamah in 1952 it was reported that prussic acid was the probable toxic principle. However, there are no records of plant analyses or detailed post-mortem examinations.

In last year's investigation we were unable to detect prussic acid in poison sedge and the material fed to experimental animals was still toxic several days after collection. This and the presence of thoracic fluid are not consistent with prussic acid poisoning.

It seems that poison sedge is not always toxic, as subsequent feeding of more than 1,000 grams of plant material collected from the Scott River property at a later date failed to induce symptoms of poisoning in two sheep.

It may be significant that the material shown to be toxic was collected not long after rain had fallen. It has also been reported that most poison sedge mortalities normally occur in autumn following the burning of vegetation.

**Treatment**

Sheep affected by poison sedge should be denied further access to the plant and disturbed as little as possible, to avoid precipitating respiratory distress. There is no known antidote to the poison sedge toxin.

---

**THE FARM MANAGEMENT FOUNDATION OF WESTERN AUSTRALIA (INC.)**

**COURSE OUTLINES—1971**

Course 6: March 15 - April 30, 1971
Course 7: June 14 - July 30
Course 8: August 9 - September 24

Week 1 Perth:
Business planning, budgeting, financing, labour management, estate planning and taxation.

Week 2 Perth:
Monday—Visit to first case study farm.
Tuesday-Friday—First case study will be conducted as a group exercise in farm management and members will return to Perth on Monday after the farm visit.

Week 3 Northam OR Moora:
Monday—Visit to second case study farm.
Tuesday, Wednesday—Examination of alternatives, planning, budgeting and financing.
Thursday—Visit to third case study farm.
Friday—Evaluation of alternatives for third case study farm.

Week 4 Perth:
Monday-Thursday—Four days of technical agriculture in Perth with visiting speakers to lead discussions on beef, sheep, pasture and cash crops.

Long Weekend Friday-Monday:
These four days will provide an opportunity for you to catch up on work at home. It is provided at the request of previous course members.

Week 5 Katanning:
Tuesday—Visit to fourth case study farm.
Wednesday-Friday—This case study will be conducted in smaller groups with members reporting back to the full course. Evening discussions will be held.

Week 6 Perth:
Monday-Friday—Course members will have a choice between visiting a fifth case study farm or alternatively using information from their own farm. Each member will work individually and will obtain assistance as necessary.

Week 7 Perth:
Monday-Friday—Training and instruction of farm employees, marketing, consulting and managerial accounting services, requirements of lenders and the consequences of economic growth on rural industries including reconstruction proposals.

---

47

Journal of Agriculture, Vol 12 No 2, 1971