Poison plants of Western Australia: toxic plants of the genera gastrolobium and oxylobium

C A. Gardner

Department of Agriculture

H W. Bennetts

Department of Agriculture

Follow this and additional works at: https://researchlibrary.agric.wa.gov.au/journal_agriculture3

Part of the Plant Sciences Commons

Recommended Citation


Available at: https://researchlibrary.agric.wa.gov.au/journal_agriculture3/vol1/iss4/11

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 3 by an authorized administrator of Research Library. For more information, please contact jennifer.heathcote@agric.wa.gov.au, sandra.papenfus@agric.wa.gov.au, paul.orange@dpird.wa.gov.au.
POISON

Plants

OF WESTERN AUSTRALIA

C. A. GARDNER,
(Government Botanist) and H. W. BENNETTS, D.V.Sc. (Principal, Animal Health and Nutrition Laboratories)

THE TOXIC PLANTS OF THE GENERA GASTROLOBIUM AND OXYLOBIUM

Since the early days of settlement in Western Australia very heavy stock losses have resulted from the many poisonous species of the two closely related genera, Gastrolobium and Oxylobium which, with two exceptions, are widely distributed throughout the southern areas of the State. They constitute the largest groups of native poisonous plants and have been responsible for a large proportion of the economic losses due to plant poisoning.

In all cases the flowers and seeds are highly poisonous and are almost invariably the most dangerous parts of the plant. The leaves, except when young, are usually harsh and unpalatable and in addition are less toxic. The degree of toxicity of all parts of the plant, however, varies considerably with the species. The seedlings of many species such as Box Poison (Oxylobium parviflorum) are highly poisonous whereas others such as York Road Poison (Gastrolobium calycinum) may be grazed with impunity. The latter species, however, is said to be dangerous at most other stages of growth. Suckers of many species are dangerous. Our knowledge of variations of toxicity is still incomplete but in general it would appear that the parts of the plant most palatable to stock are the ones which are most highly poisonous.

ANIMALS POISONED

Sheep, cattle and horses are commonly killed by ingestion of these plants, but there is no doubt that native animals and birds eat leaves, flowers and seeds of poisonous species without harmful effect; such material has often been collected from the stomachs of marsupials and from the crops of birds. Numerous cases are on record where dogs and cats eating viscera from the native animals and bronze-winged pigeons have been poisoned, the symptoms shown being similar to those shown by poisoned sheep and cattle. Wild horses (brumbies) are said to be markedly resistant to the effects of the poisoning although they may succumb if over-driven.

Attempts have been made by Bennetts in this State to induce immunity in sheep by the administration of graded doses of extracts of toxic species but with negative results.

SYMPTOMS

Signs of heart and respiratory distress are invariably marked. A weak, accelerated heartbeat appears to be the first sign and this is usually accompanied by rapid breathing which may
Plate 1.
Illustrating the parts of the plants and the terms used in the text.
increase to 200 a minute or more, the respiration becoming noisy and panting. Flecks of bloodstained froth may appear in the mouth following bleeding from the lungs and a few ounces of blood may exude from the mouth and nostrils. Driving increases the respiratory distress and may cause death within a few minutes. Frequency of urination is a fairly constant sign of poisoning.

Sheep which may have been grazing on poison country without exhibiting any ill effects may show severe symptoms if disturbed by dogs or if rounded up to be driven to other pastures.

Symptoms may vary from pronounced excitability and muscular spasms with stamping of the feet and twitching of ears and eyelids to signs of depression and muscular weakness. In the latter case the animal remains dull and the spasms are absent.

When standing the sheep may adopt a dejected humped attitude with the nose sometimes almost touching the ground. Following this, when let out of a pen for instance the animal may brighten up and walk or run away with the head held high. The feet are lifted high in running and the hind legs are straddled. After proceeding for 50 yards or so the sheep stands in the characteristic dejected attitude and will not move even if prodded. An affected sheep often lies down and appears partially paralysed. Death may occur within several hours but is frequently delayed for one to four days.

**IDENTIFICATION**

About 50 distinct plants are attributed to the genera Gastrolobium and Oxylobium, of which 30 are known to be poisonous, the remainder as far as we know being harmless. These two genera belong to the pea-flowered, pod-bearing family Papilionaceae, easily recognised by their flowers. The toxic species have certain features in general, some of which may require a lens for their examination because of minute structures, others are easily discernible in the field. Farmers should pay particular attention to the following points, since they are thereby enabled to decide whether or not a plant is a poison plant, or should be regarded with suspicion, when stock losses are sustained. Although these points are not entirely reliable, they serve in most instances to distinguish the toxic pea-flowered shrubs of South Western Australia from those which are harmless.

1. All are shrubs, i.e., they branch close to the ground level and have woody stems. Most are under five feet in height, exceptions being Box poison (in some cases), Heart-leaved poison and some forms of Prickly poison, which may attain a height of up to ten feet.

2. The leaves are opposite to each other along the branches, i.e., the leaves are on opposite sides of the stem, but each pair arises at the same level, or three or four leaves arise from the same level. The exceptions are Phillips River poison, Rock poison and Box poison. In the latter case, the leaves are densely crowded. In Box poison the leaves are sometimes scattered, but this arrangement is rare, and typically Box poison leaves are opposite or in threes.

3. There are two small organs at the base of the leaves called stipules, arranged one on each side of the leaf-stalk. In the poison plants these stipules are heart-shaped or oblong, lance-shaped, rigid, and joined to the leaf-stalk in the lower parts. Otherwise the stipules are distinct from the leaf-stalk, and lose their fine points when old.

4. The flowers are terminally arranged at the ends of the branches in racemes which resemble loose spikes, usually of a length exceeding that of the leaves. Occasionally these “spikes” also originate from the leaf bases along the stems. In Heart-leaved poison and Phillips River poison the “spikes” may be short and broad.

5. The calyx is unequally divided; of the five divisions, the two which lie behind the large upright petal (standard) are more united than the three lower divisions. In addition there are small brown leaf-like organs below each flower, known as bracts, which are thin and chaffy, and always fall before the flower is fully expanded.

6. The corolla (coloured part of the flower—the petals) is usually yellow or orange, rarely almost red in Crinkle-leaved poison and Net-leaved poison, and reddish towards the base with usually reddish radiating lines.

7. The ovary (immature pod seen in the flower) is silky-hairy, hairy, or almost woolly, never devoid of hairs, although the pod may become hairless at maturity. In Oxylobium there are four to eight ovules (immature seeds) in the ovary, and in Gastrolobium constantly two. There may be fewer seeds in the pod than are ovules in the ovary. This difference in the number of ovules is the sole character which separates the toxic species of Gastrolobium and Oxylobium.

**DISTRIBUTION**

With the single exception of Wallflower poison, which is tropical in distribution, the species are confined to Western Australia, and all of them south of the Gascoyne River. They may be arranged according to areas as follows:
External parasites affect the health of sheep and the quality of wool. "GAMALENE" liquid sheep dip effectively controls these dangerous parasites. It kills them and protects against re-infestation.

"GAMALENE" is non-poisonous and non-irritant. It can be added direct to the dipping bath. It does not settle in bath — continual stirring is not necessary.

"GAMALENE" can be used at any stage of wool growth and is equally effective in power spray or plunge dip.

Another quality SICKLE BRAND product

W.A. Distributors

CO-OPERATIVE WHOLESALE SERVICES LTD.
569 WELLINGTON STREET PERTH

Please mention the "Journal of Agriculture, W.A.," when writing to advertisers
GASTROLOBIUM: A, PHILLIP'S RIVER POISON (G. stenophyllum, Turcz); B, MALLET POISON (G. densifolium, C. A. Gardn.); C, GIBERNINE POISON (G. rotundifolium, Meissn); D, HOOK-POINT POISON (G. hamulosum, Meissn); E, BERRY POISON (G. parrifolium Benth.); F, CLUSTER POISON (G. Bennettsianum, C. A. Gardn.); G, WODJIL POISON (G. floribundum, S. Moore); H, YORK ROAD POISON (G. calycinum, Benth.); I, SANDPLAIN POISON (G. microcarpum, Meissn); K, CHAMPION BAY POISON (G. oxylobioides, Benth.); L, NARROW-LEAVED POISON (G. crassifolium, Benth.); M, WONGAN POISON (G. glaucum, C. A. Gardn.); N, ROCK POISON (G. callistachys, Meissn).
A. Kimberley Division, north of the King Leopold Range, also Mount Anderson, and the Hamersley Range, south from Roebourne:

WALLFLOWER POISON (Gastrolobium grandiflorum F. Muell.).

B. Murchison district and eastwards to Wiluna, southwards to Payne’s Find and the Ninghan Hills, also at Latham

BREELIA OR KITE-LEAVED POISON (Gastrolobium Laytonii Ewart & White).

C. Eastern Goldfields:

Granite outcrops near Coolgardie:

GRANITE POISON (Oxylobium graniticum S. Moore).

Occurring variously:

BOX POISON (Oxylobium parviflorum Benth.).

Gravelly sandplain and Wodjil country:

WODJIL POISON (Gastrolobium floribundum S. Moore).

D. South-West Division:

a. Coastal plain and Darling escarpment (northwards from Pinjarra):

Sandplain and gravelly plain with a clay subsoil:

CHAMPION BAY POISON (Gastrolobium oxylobioides Benth.).

Granite country:

YORK ROAD POISON (Gastrolobium calycinum Benth.).

ROCK POISON (Gastrolobium callistachys Meissn.).

Gravelly clay soil:

WANDOO POISON (Gastrolobium floribundum A.-M. Moore).

HILL RIVER POISON (Gastrolobium bidens Meissn.).

PRICKLY POISON (Gastrolobium spinosum Benth.).

b. Wandoo and Mallet areas of the Great Southern District:

Sand plain:

SANDPLAIN POISON (Gastrolobium microcarpum Meissn.).

PRICKLY POISON (Gastrolobium spinosum Benth.).

YORK ROAD POISON (Gastrolobium calycinum Benth.).

Loamy soils, sometimes granitic:

BOX POISON (Oxylobium parviflorum Benth.).

GILBERNINE POISON (Gastrolobium rotundifolium Meissn.).

BULLOCK POISON (Gastrolobium trilobum Benth.).

PRICKLY POISON (Gastrolobium spinosum Benth.).

Granite outcrops:

HEART-LEAVED POISON (Gastrolobium bilobum E. Br.).

ROCK POISON (Gastrolobium callistachys Meissn.).

Gravelly loamy soils:

MALLET POISON (Gastrolobium densifolium C. A. Garin.).

BOX POISON (Oxylobium parviflorum Benth.).

GILBERNINE POISON (Gastrolobium rotundifolium Meissn.).

PRICKLY POISON (Gastrolobium spinosum Benth.).

c. Jarrah and Wandoo country of the Darling Range:

Gravelly soil, also granite soil:

CRINKLE-LEAVED POISON (Gastrolobium villosum Benth.).

PRICKLY POISON (Gastrolobium spinosum Benth.).

YORK ROAD POISON (Gastrolobium calycinum Benth.).

SANDPLAIN POISON (Gastrolobium microcarpum Meissn.).

d. Wheat belt:

Sandplain, heath and gravelly wodjil soils:

PRICKLY POISON (Gastrolobium spinosum Benth.).

WODJIL POISON (Gastrolobium floribundum S. Moore).

CLUSTER POISON (Gastrolobium Bennettianum C. A. Garin.).

SANDPLAIN POISON (Gastrolobium microcarpum Meissn.).

NARROW-LEAVED POISON (Gastrolobium crassifolium Benth.).

BERRY POISON (Gastrolobium parviflorum Benth.) (Greenhills and Brookton to Kellerberrin).

HOOK-POINT POISON (Gastrolobium hamulosum Meissn.) (Calingiri to Wongan Hills).

WONGAN POISON (Gastrolobium glaucum C. A. Garin.).

Granite outcrops:

ROCK POISON (Gastrolobium callistachys Meissn.).

BREELIA OR KITE-LEAVED POISON (Gastrolobium Laytonii Ewart & White) (Latham district only).

BOX POISON (Oxylobium parviflorum Benth.).

Clay or loamy soils:

GILBERNINE POISON (Gastrolobium microcarpum Meissn.).

BOX POISON (Oxylobium parviflorum Benth.).

CLUSTER POISON (Gastrolobium Bennettianum C. A. Garin.).
GASTROLOBIUM: A, WALLFLOWER POISON (G. grandiflorum, F. Muell) (a, the typical form from North Kimberley; b, the form from the Hamersley Range); B, CRINKLE-LEAVED POISON (G. villosum, Benth); C, HILL RIVER POISON (G. bidens, Meisn); D, WANDOO POISON (G. polystachyum, Meisn); E, MOUNT RAGGED POISON (G. pycnostachyum, Benth); F, RUNNER POISON (G. ovalifolium, Henfr.); G, STIRLING RANGE POISON (G. velutinum, Lindl); H, RIVER POISON (G. Forrestii, Ewart); I, HEART-LEAVED POISON (G. bilobum, R. Br.).
Mr. Farmer . . .

PREPARE NOW!

★ PLACE AN ORDER NOW FOR THE ARMSTRONG HOLLAND "BULLDOG" SCOOP AND SO BE READY TO START RIGHT INTO OPERATION JUST AS SOON AS THE WINTER IS OVER.

ARMSTRONG HOLLAND

The "B U L L D O G" Wheel Scoop is an ECONOMY Scoop . . . It moves MORE dirt and SAVES fuel, time repairs, by carrying loads on pneumatic tyres

MODELS
Bowl Capacity Width cu. ft.
4SHP 4ft. 15-22
5SHP 5ft. 18-27
4HMP 4ft. 28-36
5HMP 5ft. 31-42
6HMP 6ft. 37-51
Made in Australia

★ Illustrated above is the Pneumatic Tyred Automatic Tractor Scoop.
WRITE FOR FULL PARTICULARS

W.A. INDUSTRIAL SALES & SERVICE Co. Ltd.
BELMONT AVENUE BELMONT
DISTRIBUTORS OF BETTER INDUSTRIAL EQUIPMENT
PHONES ML446, ML310, ML515. TELEGRAMS: "ANGLEDOZER"

Please mention the "Journal of Agriculture, W.A.," when writing to advertisers
e. South coastal district; lower Jarrah forest, Karrri forest and the south coastal districts from Albany to Israelite Bay, as far north as Tambellup, Ravensthorpe and Salmon Gums:

Granite soils:
HEART-LEAVED POISON (Gastrolobium bilobum R. Br.).
BROTHER-BROTHER (Oxylobium tetragonophyllum E. Pritzel) (Ravensthorpe district only).
NET-LEAVED POISON (Oxylobium racemosum (Turcz.) C. A. Gardn.).
BOX POISON (Oxylobium parviflorum Benth.).

Quartzite and sandstone hills:
STIRLING RANGE POISON (Gastrolobium velutinum Lindl.).
PRICKLY POISON (Gastrolobium spinosum Benth.).
MOUNT RAGGED POISON (Gastrolobium pycnostachyum Benth.).
PHILLIPS RIVER POISON (Gastrolobium stenophyllum Turcz.).

Sandheaths (often gravelly):
STIRLING RANGE POISON (Gastrolobium velutinum Lindl.).
NARROW-LEAVED POISON (Gastrolobium crassifolium Benth.).
PRICKLY POISON (Gastrolobium spinosum Benth.).

Watercourses:
RIVER POISON (Gastrolobium Forrestii A. J. Bart.).
SOUTH COAST GULLY POISON (Oxylobium heterophyllum Benth.).
BOX POISON (Oxylobium parviflorum Benth.)—a narrow-leaved form.

KEY TO THE SPECIES

(Based on leaves and habit of growth.)

A. Leaves not toothed.

B. Leaves all or mostly irregularly arranged, scattered or alternate, never strictly opposite, usually crowded along the branches.

C. Leaves very narrow, densely crowded, V-shaped in section, usually alternate:
PHILLIPS RIVER POISON (G. stenophyllum Turcz.).

C. Leaves flat or the margins curved downwards (recurved).

D. Leaves narrow, 1-2 inches long; racemes elongated (i.e., the flowers in long "spikes");
ROCK POISON (G. callistachys Meissn.).

D. Leaves oblong to narrowly oblong, convex underneath, concave above, less than half an inch long:
BERRY POISON (G. parvifolium Benth.).

B. Leaves strictly opposite each other, or in threes or fours arising in whorls, from the same position on the branch or stem.

C. Stipules broad at the base, lance-shaped, membranous, produced into a fine tapering point, the lower part persistent and attached to the leaf-stalk.

D. Leaves thick, crowded, without any hairs, less than half an inch long, lance-shaped:
MALLET POISON (G. densifolium C. A. Gardn.).

D. Leaves not thick and rigid, not crowded, cobwebby-hairy underneath, half to one inch long and typically broad:
GILBERNINE POISON (G. rotundifolium Meissn.).

C. Stipules hair or bristle-like, usually inconspicuous, not persistent.

D. Leaves small, rather broad, obtuse with a fine but small bristle-like distinctly hooked point, the leaf less than half an inch long:
HOOK-POINT POISON (G. hamulosum Meissn.).

D. Leaves mostly longer than half an inch, acute, obtuse or notched at the apex, never obtuse with a small hooked hair-like or bristle-like point.

E. Leaves terminating in a sharp pungent point, either tapering gradually into the point, or abruptly narrowed towards the tip into a short rigid straight or curved point.

F. Leaves somewhat rigid, abruptly narrowed into a rigid point, either concave or keeled; stems reddish-yellow.

G. Leaves less than one inch long, somewhat curved and spreading outwards from the stem, usually dense:
CLUSTER POISON (G. Bennettsianum C. A. Gardn.).

G. Leaves above three-quarters of an inch long, narrow and rigid, not curved, erect.

H. Leaves mostly in pairs, mostly 2 inches long, deeply concave or V-shaped, yellowish-green:
WODJIL POISON (G. floribundum S. Moore).

H. Leaves mostly in threes, less than one inch in length.

I. Leaves concave, thick, obtuse:
NARROW-LEAVED POISON (G. crassifolium Benth.).

I. Leaves flat, obtuse, but with a fine straight point at the blunt apex:
WONGAN POISON (G. glaucum C. A. Gardn.).

F. Leaves not very rigid, glaucus (blue-green), usually tapering into a pungent point, or if abruptly contracted, the point slender.

G. Leaves rounded or indented (heart-shaped) at the base, flat or concave; flowers large, the calyx hairless:
YORK ROAD POISON (G. calycinum Benth.).
Plate 4.

GASTROLOBIUM: A, BREELYA or KITE-LEAVED POISON (G. Laytonii, Ewart & White); B, BULLOCK POISON (G. trilobum, Benth); C, forms of PRICKLY POISON (G. spinosum, Benth).
G. Leaves tapering into the leaf-stalk; flowers small, the calyx hairy.

H. Leaves spreading, green above, paler underneath, gradually tapering into a fine sharp point:

**SANDBLAIN POISON** (G. microcarpum Meisn.).

H. Leaves somewhat erect, glaucous or yellowish, the same colour on both surfaces, usually abruptly contracted into a fine point, sometimes tapering at the apex:

**CHAMPION BAY POISON** (G. oxyloboides Benth.).

E. Leaves obtuse or notched at the apex.

F. Tropical species:

**WALLFLOWER POISON** (G. grandiflorum F. Muell.).

F. South-Western and Goldfields species.

G. Leaves with undulated or crisped margins.

H. Trailing shrub; flowers red, in elongated racemes much exceeding the leaves:

**CRINKLE-LEAVED POISON** (G. villosum Benth.).

H. Erect shrubs with much branched stems; flowers yellow suffused with red; racemes of flowers only slightly exceeding the leaves.

I. Leaves almost flat:

**WANDOO POISON** (G. polystachyum Meissn.).

I. Leaves with much recurved or revolute (rolled under) margins, typically 2-horned at the tip:

**HILL RIVER POISON** (G. bidens Meissn.). (Intermediate forms between Wandoo and Hill River poisons occur.)

G. Leaves without undulate margins, either flat, more or less folded, or the straight margins rolled underneath (revolute).

H. Leaves almost round, about as broad as long, broad at the base.

I. Leaves obtuse at the base and apex.

K. Prostrate or trailing shrub; racemes slender and elongated; typically a hairy plant:

**RUNNER POISON** (G. ovalifolium Henfr.).

K. Erect shrub with stiff wiry branches; racemes short and compact:

**MT. RAGGED POISON** (G. pycnostachyum Benth.).

I. Leaves contracted or shortly tapering into a fine stiff pungent spine at the apex, indented at the base:

**PRICKLY POISON** (G. spinosum Benth.).

K. Leaves longer than broad, or if as broad as long then tapering at the base.

I. Leaves commonly in clusters of 3 or 4, wedge-shaped (i.e., broadened towards the apex), the apex notched, the margins recurved or rarely flat, stems acutely angled.

K. Leaves mostly in threes, rigid, less than 1 inch long.

L. Leaves concave, quite hairless:

**NARROW-LEAVED POISON** (G. crassifolium Benth.).

L. Leaves flat or with recurved margins, usually silky hairy or pubescent underneath:

**STIRLING RANGE POISON** (G. velutinum Lindl.).

K. Leaves mostly in fours, 1-2 inches long, or if shorter then thin and not rigid:

**RIVER POISON** (G. Forrestii Ewart).

I. Leaves in pairs (or in G. crassifolium sometimes in threes), not wedge-shaped and not notched at the apex except in Brother-Brother, but then the leaf with parallel sides.

K. Leaves thick and rigid, pale or glaucous, smooth, thick, concave, hairless:

**NARROW-LEAVED POISON** (G. crassifolium Benth.).

K. Leaves flat or with recurved (rolled downwards) or revolute margins.

L. Leaves hairy or silky on the lower side, the margins recurved or revolute.

M. Leaves very thick, deeply notched at the base and apex, the margins strongly recurved, densely velvety or woolly underneath, the leaves mostly directed downwards from the stem:

**BROTHER-BROTHER** (O. tetragonophyllum E. Fritzel).

M. Leaves erect or spreading, never reflexed, silky or finely and short hairy underneath, not notched at the base.

N. Stipules fine and conspicuous; leaves thin, loosely and sparsely hairy on the lower side, especially on the midrib, the hairs spreading.

**SOUTH COAST GULLY POISON** (O. heterophyllum [Turcz.] Benth.).
The Commonwealth Bank offers the most comprehensive range of trading bank services available in Australia. Such services include cheque accounts, finance for primary production and other facilities helpful to the man on the land.

In addition each year the Bank makes large donations to further research into many aspects of primary production. It also makes advances to marketing boards and co-operative societies so that the man on the land may receive early payment for his products.

The Commonwealth Bank is owned by you, it operates in your interests. For every trading bank service make use of the friendly co-operation available to you at all Branches.
OXYLOBIUM: A, BROTHER-BROTHER (O. tetragonophyllum, E. Pritzel); B, BOX POISON (O. parviflorum, Benth); C, NET-LEAVED POISON (O. racemosum (Turcz), C. A. Gardn); D, SOUTH COASTAL GULLY POISON (O. heterophyllum, Benth); E, MUNTADGIN POISON (O. spectable Endl.); F, GRANITE POISON (O. graniticum, S. Moore).
N. Stipules inconspicuous; leaves rather thick, the margins varying from almost flat or slightly recurved to closely revolute, and then the under surface invisible, yellowish with short appressed hairs underneath.

**BOX POISON** (*O. parviflorum* Benth.).

L. Leaves hairless (glabrous) when full grown, quite flat and prominently net-veined.

M. Leaves notched at the base; bracteoles toothed or 3-pronged:

**MUNTADGIN POISON** (*O. spectabile* Endl.).

M. Leaves not notched at the base; bracts not toothed.

N. Leaves broad, tapering into the leaf-stalk; flowers large, yellow:

**GRANITE POISON** (*O. graniticum* S. A. Gardn.).

N. Leaves narrow, oblong or oval, obtuse at the base; flowers reddish:

**NET-LEAVED POISON** (*O. racemosum* [Turcz.] C. A. Gardn.).

A. Leaves toothed or lobed.

B. Leaves typically kite-shaped, i.e., the greater and lower part wedge-shaped, the upper part triangular or very blunt, typically with two lateral teeth or points above the middle and horizontally spreading:

**BREELYA OR KITE-LEAVED POISON** (*G. Laytoni* Ewart & White).

B. Leaves not kite-shaped, if triangular the lateral points below the middle or diverging from the base.

C. Leaves flat, hairless.

D. Leaves deeply divided into three narrow pungent-pointed teeth or lobes all projecting forwards; flowers mostly in clusters in the leaf-axils. ? toxic:

**BULLOCK POISON** (*G. trilobum* Benth.).

D. Leaves variously toothed, but when 3-lobed or 3-toothed, the two lateral teeth not deeply divided off from the leaf, and always laterally spreading; racemes mostly terminal:

**PRICKLY POISON** (*G. spinosum* Benth.).

C. Leaves with the margins closely rolled underneath, wedge-shaped, with usually two short teeth at the apex forming two cusps, or the leaf very obtuse or truncate, deeply hairy underneath:

**HILL RIVER POISON** (*G. bidens* Meissn.).

---

**PALATABILITY AND TOXICITY**

Fully developed plants are not as a rule attractive to grazing animals and the major risks are those encountered with hungry travelling stock which sometimes die in large numbers. In the natural pasture many of the plants are avoided by stock because of their harsh or prickly nature. The fact that the flowers and seeds are the most highly toxic parts is interesting when it is considered that the toxic plants of both genera are only those in which the racemes are terminal and project beyond the foliage.

Because of this, the seeds, which are sometimes produced in abundance, are easily available to stock. Sheep, especially during the summer months, may find the seeds attractive and may eat them by nipping them off the plants or eating them from the ground.

Although the adult foliage is hard and unpalatable, the seedlings are of much softer texture. When seedlings appear after bushfires they are apt to be devoured greedily by all classes of stock and heavy mortalities occur.

**CONTROL**

All of the toxic species of the genera *Gastrolobium* and *Oxylobium*, as far as we know, can be destroyed by cutting at the ground level, with the exception of Wodjil poison, Cluster poison, York Road poison and Champion Bay poison. These plants sucker freely, and require to be grubbed. When grubbing, if the resultant excavation is left open, the roots remaining in the soil will produce suckers if their ends are exposed, and thus it is important that the excavation be filled and the filling compacted. When this is done there is less risk of these particular species producing suckers. The poison plants of these genera are a problem almost
peculiar to Western Australia, and with the exception of the few species which occur in sandy gravelly open country, such as Berry poison, Hook-point poison and Champion Bay poison, the types of country most notorious in this respect are the Wandoo (white gum) and Mallet country of South-Western Australia. This is usually regarded as "poison country." In addition there are a number of plants which are more or less restricted to granite rocks, especially in the wheat areas, and a search should always be made for the plants which might occur in such situations.

Cultivation, where possible, is the best method of destruction. Under natural conditions, the plants usually occur scattered through country carrying other shrubs some of which are not unlike the toxic species. Individual treatment, such as pulling, may result in certain plants being overlooked, but with cultivation everything is destroyed. It must be remembered, however, that a feature of these plants is the longevity of their seeds, and there is always the risk of young plants appearing after the initial destruction.

Fire induces germination. Following clearing and burning, the land should be cropped, and after harvesting the stubble should be burned, preferably by means of a slow fire on a calm day. The following season the land should be cultivated, cropped and again burned, repeating the performance if necessary for a third time. By then most of the seeds in the soil will have germinated, and thereafter there is little risk of subsequent poisoning. At the same time it pays to be vigilant, especially in those places where cultivation has not been performed, such as the margins of paddocks.

Where clover pasture is intended there is not the same risk, for the seedlings come up with the clover and are usually eaten before they have attained any size, and thus there is little material ingested, together with the fact that a dense stand of clover does much to suffocate the young poison plants through competition.
GRUBBING

TREES AND STUMPS
and doing speedily what is otherwise slow and laborious work

Tremendous power exerted by
The Monkey Grubber

tears them quickly and cleanly from the earth with roots intact. A thorough and workmanlike job, and the unrivalled method of dealing with your timbered land.

A GRUBBING MACHINE equipped with cable of correct length, size and weight for ease of handling and embodying such features as multiple speeds, automatic releasing gear, rope shortener, snatch block, and simple sturdy rope couplings.

Each one a time saver and a labour saver, and to which the effectiveness gained by portability and ease of operation must be added.

With the MONKEY GRUBBER a day's work can be done in an hour.

It will surely be to your advantage to know about it from

THE JACK PEOPLE

TREWHELLA BROS. Pty. Ltd.
TRENTHAM, VIC.

W.A. Stockists: HARRIS SCARFE & SANDOVERS LTD.
McLEAN BROS. & RIGG LTD.
WESTRALIAN FARMERS LTD.
The Bairds Co. Ltd.