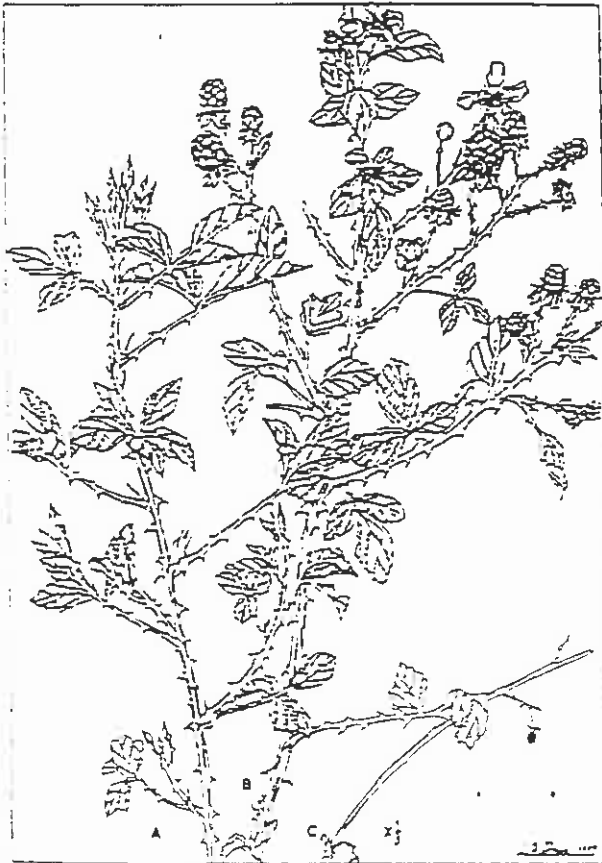


Control of American Bramble

compiled by R.P.Denny,
 Cedara Weeds Laboratory,
 Plant Protection Research
 Institute, Pietermaritzburg
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American bramble (*Rubus cuneifolius* Pursh)
 A Primocane B Floricane C Last years cane



American bramble (*Rubus cuneifolius* Pursh)
 A Primocane (five leafed type) B. Upright plant in veld
 C. Sprawling plant in shade

Description

American bramble (*Rubus cuneifolius* agg) is an alien deciduous shrub with many stems. The stems have curved prickles and the leaves occur in groups of 3 or 5. Older stems bear white flowers which develop into black berries. It is a Declared Weed in the Conservation of Agricultural Resources Act, 1983. A number of "brambles" or "blackberries" (*Rubus* spp) occur naturally in South Africa and some form hybrids with American Bramble. These

hybrids appear "different" in some respects to their parents and should be controlled as well.

There is no evidence that indigenous brambles spread far from their natural habitats in kloofs and where indigenous forest occurred, although there may be few signs now of the original vegetation. Most are easily separated from American bramble by their leaves being in groups of 5 or 7, the presence of orange or red fruit and other features.

Growth and reproduction

Each stem of American bramble only lives for about 18 months and many changes take place in its appearance. New stems (primocanes) start to appear at the soil surface in October and grow rapidly till March, often giving an arched appearance to the growth. There are other "types" of American bramble which are shorter and their stems remain erect. The lower (older) leaves die naturally after awhile and fall-off. This process becomes more noticeable once growth stops and few leaves remain by the end of July.

New leaves appear in August followed by flowers in September (the stem is now called a floricanes). Fruit development and ripening is complete by January and the floricanes then die and a new generation of primocanes forms the growth. In undisturbed situations most primocanes arise close to floricanes and are clearly "replacement" canes.

Although large numbers of seeds are produced each year, it is very difficult to find seedlings. Some seed must be spread by birds etc, but it does not germinate easily. New stems which appear some distance from established patches arise from horizontal roots that grow away from the patch. Most spread of the plant is believed to occur in this way. Some indigenous species and hybrids can form new plants when a primocane bends over and the tip touches the ground (tip-rooting), but this is a rare occurrence with American bramble.

As half the aerial growth dies naturally each year, the real target for control measures is the extensive root system. Dormant buds are present on the roots and they must be prevented from growing into new stems by either being killed or starved of nutrients.

Control

Three separate operations may be required.

1. Pre-treatment

The need for this will depend on the extent, height and density of the bramble growth. If field workers cannot reach all parts, then some form of preliminary treatment will be necessary. Examples are:

- i) burning, which removes the accumulation of dead stems and kills many living ones as well.
- ii) reducing the height of the bramble by slashing. This is necessary if it is above shoulder height.
- iii) making paths by flattening the growth with empty fuel drums or sheets of corrugated iron.

The best time to do this work is in July when few leaves are present.

2. Initial or overall treatments for dense growth.

These are of two types, those that reduce the nutrient reserves in the roots ("starve them"), and those that directly kill the dormant buds on the roots.

- a) treatments to "starve" the roots.

These treatments cut-off or severely damage new stems when

they appear above the soil surface. This young growth is dependent on nutrients stored in the roots, and if it is destroyed, the nutrient reserves become depleted.

The treatments should be applied before the stems become too tall and are able to supply nutrients to the roots from their own leaves. They should be applied at least twice a year, say, November and February.

Stems must be cut-off or damaged as low as possible, preferably at ground level, so a new stem is stimulated to grow.

i) Cutting, by slashing or mowing, and burning.

This can be done by hand using either simple or motorised tools, e.g. sharpened hoe, cane-knife with handle, hand slasher or brush cutter. The work must be well organised as it is tiring and the tendency is to cut higher and higher as the day progresses. Tractor-mounted equipment must be set as low as possible when working in bramble and raised for work outside.

Where the veld is burned regularly to even the grazing a similar effect is achieved, but other treatments must be included between fires.

ii) Grazing and browsing by livestock.

Haigh (1980) reports that "mechanical methods can be combined with grazing by sheep or cattle. The old bramble stems are removed by slashing or burning in winter and in spring the bare areas are fertilised with 200 kg

limestone ammonium nitrate and superphosphate per hectare. Stock in the camp will be attracted to the lush growth and will happily graze the tender young bramble shoots with the soft weeds. Any bramble shoots which survive and harden must be slashed. Rehabilitation of large areas can be assisted by sowing *Eragrostis curvula* seed after the fertiliser is applied". If salt-licks, etc are placed close to bramble patches trampling will cause some damage.

These practices have not been used widely and should be tried first in small paddocks which are used regularly, e.g. night-camps.

Goats are the most "damaging" livestock as they browse young stems and the leaves on older stems. They are used in Australia and New Zealand for this purpose and some farmers have started using them in South Africa.

iii) Damage caused by insects and leaf diseases.

European bramble (*R. fruticosus* agg.) is an important weed in Australia and New Zealand and like American bramble occurs as a number of different forms (species). A mixture of strains of a rust fungus (*Phragmidium violaceum*) which is found on it in Europe, was shown to be "highly damaging to eight species and several hybrids which are found in Australia". While the release of the fungus was being discussed with bee-keepers and jam manufacturers, someone released strains of the fungus in Victoria. It was reported as widespread in south-eastern Australia in 1985 and was recorded in New Zealand in

1990. To date, no strain has been found which damages American bramble. Local insects and diseases do damage the leaves of American bramble but the damage is insufficient to have any permanent effect on the plant.

- b) treatments to kill buds on the roots.

Systemic herbicides must be used and they are usually applied to the leaves and stems. Some products are applied to the soil. Details of the herbicides registered for control of American bramble are given in the Table attached.

3. *Follow-up or spot treatments for any regrowth.*

The same treatments are used as for the initial operation, but as little bramble growth may be visible, organising the work is more difficult. For example, spot-spraying scattered stems in the veld proceeds very slowly because they are hidden by the grass. Also, more herbicide may be used than expected because most spray tips available have a wide angle and some spray always misses the regrowth which has a single stem.

It is not essential to repeat the initial treatment, but another must be used which also kills or damages the new stems that appear.

The reason why the area covered by American bramble continues to increase is because landowners will not carry-out this "follow-up" operation. Instead, they leave the few stems remaining and only return to the area when the growth is dense again. Is this cost-

effective, you must decide?

Points to remember when using foliar-sprays

If the undisturbed bramble growth is taller than 1,5m, reduce the height by either burning, slashing or flattening and then spray the herbicide onto the new stems when they are 0,5-1,0m tall.

If no guidance is given on the herbicide label, delay spraying of undisturbed growth until the primocanes are the same height as the floricanes. If a pre-treatment has killed the floricanes, delay spraying until primocanes are well grown (January?) and continue until natural leaf-fall reduces the leaf-cover (May?).

Spray operators must be trained on site and it is better to use a small group of 2 or 3, properly supervised, rather than one operator left on his own.

Herbicides are expensive and the amount used will cost at least R150 per hectare of bramble. They should be used where the area is large and control is required quickly. Where the area of bramble is small e.g. on small-holdings, other treatments may be adequate.

If you are using herbicides for the first time, obtain further information from Agro-chemical company staff.

All treatments have to be repeated at least once, some for a number of years. Therefore, it is important to start with a clear objective, plan accordingly and so ensure that the work can continue for the required time. Otherwise,

the high initial expenditure
could be wasted.

Acknowledgements.

Some of this information has
appeared previously in popular
publications by G.Pickworth
(1968), H.Haigh (1973, 1980),
E.B.Birch, J.J.Jordan &
A.J.Botes (1983) and
D.J.Erasmus (1984).

HERBICIDE LABEL TREATMENTS FOR AMERICAN BRAMBLE
 prepared by Cedara Weeds Laboratory,
 Plant Protection Research Institute,
 Pietermaritzburg, 0331-33371. November 1990. RPD.

TRADE NAME	ACTIVE INGREDIENT g/l or kg	REGIS- TRATION No.	HERBICIDE MIXTURE	%	REMARKS
APPLICATION SITE. To leaves and stems once new growth is taller than 0,5m or fruit has formed on flowering stems.					
Roundup	359g glyphosate	L 407	300 ml Roundup 10 l water	3	Apply 200l/ha to give approx. 6l Roundup.
Garlon 4	480g triclopyr	L 2351	50 ml Garlon 10 l water	0,5	ADD 50ml Agripon wetter. Apply 400l/ha.
Tordon 22K	240g picloram	L 64	44 ml Tordon 10 l water	0,44	Apply as a low pressure drenching spray <u>NOT</u> next to crops, plantations.
Krenite	200g fosamine	L3837	200 ml Krenite 10 l water	2,0	ADD 10 ml G49 wetter. Apply <u>January to May</u>
Brush-Off Escort	600g 600g metsulfuron	L5104 L5101	2,5g product 10 l water		ADD wetter - recommended. 500l/ha <u>January to May.</u>

APPLICATION SITE. To small, dense patches in veld.

Reclaim	752g tebuthiuron	L 3014	Add water to 1 kg powder to make 5 l volume.		Apply to soil in 2 ml doses
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FOR PRECAUTIONS AND DIRECTIONS FOR USE - READ THE LABEL.