

# CONTROL OF AMERICAN BRAMBLE

compiled by Robin Denny tel (033) 239 1807, revised March 1999

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## Description

American bramble (*Rubus cuneifolius* aggregate) 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 South Africa, (refer to Conservation of Agricultural Resources Act, 1983).

There are "Brambles (or blackberries)" (*Rubus* spp) which occur naturally in South Africa. Some form hybrids with American bramble and have a different appearance. These hybrids should be controlled as well.

There is no evidence that indigenous brambles spread far from their natural habitats e.g. in cool moist areas and where natural forest occurred, although there may be no sign of the original vegetation now.

**Their leaves are usually in groups of 5 or 7** and they have orange or red fruit.

Most are easily separated from American bramble.

## Growth & reproduction

A stem of American bramble only lives for about 18 months and during this period it's appearance changes every few months. New stems (**primocanes**) start to push through the soil surface in October and grow rapidly till March. Some types of alien bramble have long stems which bend over to give an arched appearance to the growth and others have short stems which stay erect. The lower (older) leaves die naturally after a while and fall off and few leaves remain on a stem by the end of July.

New leaves appear in August followed by flowers in September (the stem is now called a **floricane**). Fruit follows, and has ripened by the end of January, and then the floricane dies. The growth you see in February is mostly primocanes preparing for next summer. In undisturbed situations most primocanes arise close to floricanes and are clearly "replacement" canes. Small patches of bramble could be one plant.

Large numbers of seeds are produced in the fruit which are spread by birds, etc, but they do not germinate easily. It is very difficult to find seedlings. **There is a very extensive "thick" root system**, with fine lateral roots, **just below the soil surface**. The plant spreads mainly by roots growing away from established patches and then producing new stems.

Some indigenous brambles and hybrids form new plants when a primocane bends over and the tip touches the ground (called tip-rooting), but this is a rare occurrence with American bramble.

**The aim of all control measures are to kill the dormant buds on the extensive root system** because half the stems above ground die naturally each year. **These buds are prevented from growing into new stems by either being starved of nutrients or killed with herbicide.**

## 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 workers cannot reach all parts, then some form of preliminary treatment will be necessary. Examples are:

i) *burning*, which destroys the accumulation of dead stems and kills the living ones as well. The ideal treatment before starting to spray with herbicide .

ii) *slashing*, which reduces the height of the bramble. This is necessary if it is above shoulder height.

iii) *flattening*, to make paths through the bramble. Empty fuel drums or sheets of corrugated iron can be used. The best time to do this work is in July or August before the new leaves appear.

### 2. Treatment of dense growth.

#### a) treatments to "starve" the roots.

These treatments severely damage or destroy stems. New stems obtain their nutrients for growth from the roots. When they are growing well, they divert nutrients to the roots to replace those used. If they are damaged when young, they are unable to return nutrients to the roots and the nutrient reserves are reduced. Cutting off stems stimulates new stems to grow, which require even more nutrients and when they, in turn, are cut off, the nutrient reserves are reduced to an even greater extent.

**Let the stems grow to a height of about 30 cm so they are clearly visible and then cut off as low as possible, preferably at ground level.**

Examples are:

1) **Cutting**, by slashing or mowing, and **burning**.

This can be done by hand using either a sharpened hoe, cane-knife with handle, hand slasher or motorised brush cutter or "weedeater". The work must be well organised because it is tiring and the tendency is to cut higher and higher as the day progresses. Tractor-mounted equipment can be used as well but must be set as low as possible. Cutting off should be done at least twice a year, say, once before Christmas and once after Christmas. If new stems can be seen, three times a year is even better, in October, January and March.

Where the veld is burned every two years to even the grazing, a similar but much less severe effect is achieved. **Additional cutting treatments must be included between fires.**

2) **Grazing and browsing** by livestock.

Haigh (1980) reported that "mechanical methods can be combined with grazing by sheep or cattle. Old bramble stems are removed by slashing or burning in winter and in spring the bare areas are fertilised with 200 kg each of limestone ammonium nitrate and superphosphate per hectare. Stock should be attracted to the lush growth and will graze and trample the young bramble shoots. Any shoots which survive must be slashed. Rehabilitation can be assisted by sowing *Eragrostis curvula* seed after the fertiliser is applied".

If feed troughs or licks are placed close to bramble patches damage will be caused by trampling.

These practices have not been used widely so success cannot be guaranteed. First try in small paddocks which are used regularly.

**Goats are the livestock which do the most damage** as they browse young stems and leaves on older stems. Certain classes of goats in Australia and New Zealand are sold as "weed eaters" for this purpose. Foresters and farmers in South Africa have started keeping goats for the same reason. Wild life browse new bramble stems in spring but then change to other plants.

3) **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 types (they call them species). A mixture of strains of a rust fungus (*Phragmidium violaceum*) from 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, etc, 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. Strains of a systemic rust fungus, *Gymnoconia nitens*, from Florida, U.S.A. were tested by PPRI on local bramble weeds but have only affected one type found in Natal to date. 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.**

**Herbicides which move to the growing points throughout the plant must be used.** They are called "systemic" or "translocated" products and are sprayed on to the leaves and stems of bramble. **The herbicides registered for control of American bramble are given in the Table.**

There is no need to cut-down or burn the dead and dying stems that remain after spraying. They will soon disintegrate and should not interfere with spraying the regrowth a year later. If dead stems are considered unsightly, wait till the leaves have dropped before cutting or burning them.

**3. Treatment of regrowth and scattered stems.**

The treatments used for dense growth ("initial operation") are used again for any regrowth etc (called "follow-up"). **The best follow up treatment is to spray with herbicide, but, it is not essential, as long as another treatment which kills or damages the new stems is used.**

Burning or severely grazing the site in late winter will make the new bramble stems more visible when they appear.

Spot spraying scattered stems is slow work because the new stems are far apart and hidden by other plants. More herbicide may be used than expected because most spray tips have a wide angle and much spray misses the single stems of the regrowth.

If you know the extent of the bramble area exactly, it is quicker **to spray the whole area** (overall spray) using back-pack sprayers with flat fan nozzles or tractor-mounted boom sprayers.

The reason the area covered by American bramble continues to increase is because landusers will not carry-out "follow-up" operations. 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?

Where patches are severely damaged/killed?, the grass which grows may be coarse "mtshiki" because the bramble smothered the common veld grasses and the decomposing bramble leaves have increased the fertility of the soil. There will always be one or two bramble stems remaining amongst the mtshiki and **they must be found and sprayed.**

### **Remember when spraying**

If the undisturbed bramble is taller than 1,5 m, reduce the height by either burning, slashing or flattening and then spray the new growth when it is less than 1,0 m high.

If no guidance is given on the herbicide label, delay spraying of undisturbed growth until the primocanes cover the floricanes. Do not spray canes that have just been cut down. If some treatment has killed the floricanes, delay spraying until new growth is knee-high (January?). **Continue spraying until leaves pull-off easily or natural leaf-fall is noticeable (April?).**

It is an advantage to spray after the fruit has dropped because there is no chance of anyone eating fruits that may have been sprayed. The herbicide residue is not poisonous but ignorant observers can cause unnecessary alarm. Most spraying is done with back-pack sprayers. 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.

Tractor-mounted sprayers with booms or hand-held lances at the end of long hoses are very effective for treating bramble in veld because they carry a large amount of spray. The output of the equipment must be checked and the operator shown how to apply the correct volume.

The ideal is to make the leaves damp with spray, "like mist on a windscreen"; not wet. The spray lance/jet should be continuously moved in a circle, to prevent this.

Herbicides are expensive and the amount used will cost at least R200 per hectare of bramble. They are the most effective treatment for American bramble, but, where the total area is, say, less than 100 x 100 m (<1.0 ha), other treatments such as burning and regular slashing may be adequate.

If you are using herbicides for the first time, obtain more information from agro-chemical companies. For example, which wetter, nozzle to use? Adding a dye will show you and the spray operators where they are actually spraying.

### **Control in pastures**

All treatments can be used in pastures and along fence lines.

Repeated slashing of a small area is inexpensive and will be effective if the principles given on p.2 are followed. The bramble will not be eradicated because it is impossible to find all the new stems amongst the grass, but it can be reduced to only a few stems which can be browsed by sheep or goats.

Herbicide residue on bramble leaves is not poisonous to stock so there is no immediate risk to animals after spraying. However, the chemical composition of the leaves will change rapidly and they may be browsed by inquisitive animals. This in turn may cause "stomach" problems.

To prevent any digestive disorders, exclude stock after spraying for two weeks or until the bramble leaves fall-off.

### **Last word**

**All treatments for American bramble have to be repeated at least once, some, a number of times. So, it is important to start with a clear objective and plan accordingly, e.g. how can burning be included.**

**Selective herbicides are used in most situations.**

**If you are spraying for first time, use Garlon 4 because effects are seen the next day and you can check if all the growth was sprayed.**

**Brushoff is slower acting, probably more effective, but more expensive too; so use it when your spray operators are working well and you have reduced the area of bramble.**

**Control work must continue until very few, if any, shoots are seen in January. If this is not done, bramble will gradually return and the high initial expenditure could be wasted.**

**It is doubtful if American bramble can be eliminated from an area, but it can become so severely**

suppressed that it has no effect on land use . Five years later it may “appear” again from the same roots.

Acknowledgements Some of information has appeared previously in popular-style 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 TREATMENTS FOR AMERICAN BRAMBLE

prepared by Cedara Weeds Laboratory, Plant Protection Research Institute,  
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**Products available in 2005 will have changed**

Trade name & (effect on plants)	Active ingredient g/L or g/kg Registration No	Herbicide mixture	Concen- tration %	Remarks
<b>APPLICATION SITE. To leaves and stems once new stems (canes) are taller than 0.5 m</b>				
<b>Roundup</b> or look-alike, "a generic". ( <i>non-selective</i> )	359g glyphosate L407 etc, etc	300ml Roundup 10L water	3.0	Apply 200L/ha to give 6L/ha of herbicide
<b>Muster</b> ( <i>non-selective</i> )	480g gly.trimesium (sulfosate) L4421	300ml Muster 10L water	3.0	Apply 200L/ha to give 6L/ha Muster
<b>Garlon</b> ( <i>selective</i> )	480g triclopyr L2351	50ml Garlon 10L water	0.50	<b>Add 50 ml Agripon wetter</b> Apply 400L/ha
<b>BrushOff</b> or Escort ( <i>selective</i> )	600g metsulfuron L5104 or L5101	2.5g product 10L water		<b>Add 20 ml Armoblen 650 wetter</b> Apply 500L/ha January to May
<b>Access</b> ( <i>selective</i> )	240g picloram L3761	44ml Tordon 10L water	0.44	Use low pressure spray. <b>Not near crops, plantations</b>
<b>Krenite</b> ( <i>selective</i> )	480g fosamine L3837	200 ml Krenite 10L water	2.0	<b>Add 10 ml G49 wetter.</b> Full cover spray late summer

**FOR PRECAUTIONS AND DIRECTIONS FOR USE - READ THE LABEL**

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