

TECHNICAL BULLETIN

Bracken control using Roundup[®] products



Background

Bracken (*Pteridium aquilinum*) is widely distributed throughout the UK being by far the commonest fern. Bracken is reported to cover over 8% of the country, an area of 11,000 sq.km. At 1-3% per year the rate of spread is faster than all the programs in place to control it, and it is encroaching on to grazing ground, forestry and amenity areas, reducing bio- diversity.

In many areas Bracken has spread from its traditional niche on the shoulders (upper slopes) of the hills. Expansion from these areas has been at the expense of open heather moor, semiimproved grassland, grass heath and wooded areas. Frequently Bracken forms almost pure stands, so thick that it is essentially a monoculture, the shading being so severe that little or nothing can grow beneath it. To further exacerbate the problem, Bracken provides a refuge for sheep ticks and thus Louping Ill and the more serious Lyme disease, its spores are considered carcinogenic and it is poisonous to cattle and horses, giving rise to 'Bracken staggers'!

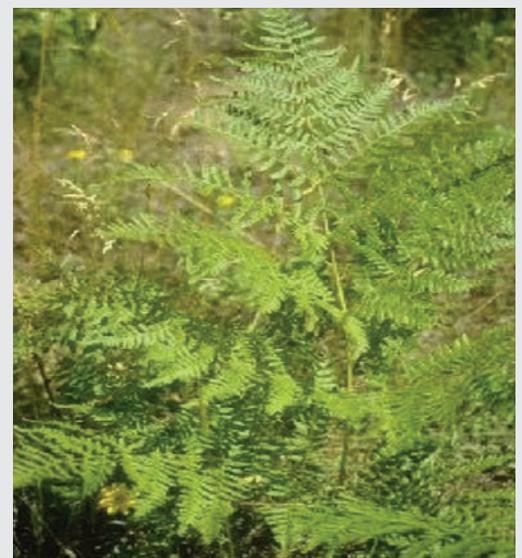
Successful control of Bracken can be difficult. The main reason for this is the extensive underground rhizome network. This network consists of two rhizome types: storage rhizomes (70-80% of total rhizomes), which contain large carbohydrate reserves, and frond bearing rhizomes near the ground surface carrying a large number of frond-forming buds.

Control methods

Repeated cutting and to a lesser extent bruising will weaken the rhizomes over a number of years. Asulox[™] provided an option to spray overall without damage to grass and could be sprayed on otherwise inaccessible areas from a helicopter, but it was very costly and had LERAP restrictions for use near water courses. The active ingredient Asulam is no longer approved under EU regulation, but the Bracken Control Group currently make annual submissions for an Emergency Authorisation via CRD to retain use of this important control measure.

For up to date details on the current arrangements please use the following link.

www.brackencontrol.co.uk/asulam



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Control with Roundup®

In accessible areas for ground application and/or where watercourses are nearby and/or where cost is an over-riding factor Roundup can be very successfully used as part of Bracken management strategies.

Timing of control is critical. Successful control using Roundup is dependent on the timing of the treatment in relation to the movement of nutrients and dry matter between the underground storage rhizomes and the fronds. As the fronds develop in spring the reserves in the storage rhizomes diminish. Treatment with Roundup during frond expansion in April, May or June will result in frond death but with little long-term effect on the rhizomes as the glyphosate is carried upwards with the nutrient flow. Once the fronds are fully expanded, the products of photosynthesis will start to be translocated down to replenish the underground reserves. Treatment of the fronds as they approach full size in July-August will give maximum translocation and long-term control of the stand.

Overall spraying is appropriate for large areas and thick stands. In many instances little or no other plants will be growing beneath the Bracken canopy and in any case, the Bracken fronds will intercept almost all of the herbicide spray. Apply at a rate of 1800 gai/ha in a water rate of 150-250 l/ha as soon as the fronds have fully expanded, usually early July – August. Later timing up to mid-September can still give satisfactory results but must be pre-senescence of the foliage. (In any case it is unwise to carry out treatment when ripe carcinogenic spores are in the air.) Treated fronds will die back within four weeks of treatment, the Roundup being translocated down into the rhizome network killing both frond forming and storage rhizomes.

Large areas, especially scattered populations or patches in grassland, moorland or heathland, may be effectively controlled using tractor/quad bike-trailed weed wiper. Use of such applicators will ensure superior, cost-effective control of the Bracken whilst leaving grass, heather and other plants unharmed.

Trailed and rotary weed wipers, such as the Logic Contact 2000, WeedSwiper, C-Dax Eliminator or Rotowiper make efficient selective application of Roundup, possible over large areas. Application is typically 1 part Roundup to 10-20 parts water, according to the weed-wiper manufacturer's instructions (specific models may vary).

Bracken should be 'wiped' at full frond expansion but before they start to turn brown and die back. Optimum control is achieved during July/August. Later timing up to mid-September can still give satisfactory results but must be pre-senescence of the foliage. Do not treat when the fronds are wet or rain is imminent. Always ensure a height differential of 10cm between the Bracken and the grass to maintain selectivity.



One year after treatment. Foreground wiped with Roundup Biactive GL using a WeedSwiper, background untreated. (Photo courtesy of Micron Sprayers)



Wiping Bracken with a Logic Contact 2000. (Photo courtesy of Logic)

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With large plants in dense stands, shading can result in incomplete coverage whether using an overall spray or a weed wiper, leading to some re-growth in the following year. However, in many situations using an efficient application technique, high levels of control are possible after just one year. Monitoring and follow-up treatment should be carried out as part of a long-term management programme.

If the Bracken is being controlled in an area accessible to livestock the animals should be kept away from the treated area whilst spraying and for 7 days where spraying is overall, and until the spray has dried on the leaf where spot treatment or wiping is carried out. However, it must be noted that treated Bracken may become palatable and is of course poisonous.

So, it may be prudent to exclude stock until the foliage has completely died down if the Bracken takes up a large proportion of the available grazing area. This is also important if other poisonous weeds like Ragwort, Cowbane, Hemlock or Hemlock Water Dropwort are present in the treated area.

Most knapsack sprayers are supplied with a set of 4 deflector nozzles giving different swath widths but all delivering 200L/ha of water at 1 bar pressure and a walking speed of 1m per sec.

Rates and water volumes

Application technique	Roundup PowerMax	Roundup Flex/ Roundup ProVantage	Roundup Vista Plus/Energy/Sonic	Roundup Biactive/ Roundup ProActive
Overall spray	2.5Kg/ha	3.75L/ha	4.0L/ha	5.0L/ha
Hand held wick type wiper	180g/L water	1 part in 3 parts water	1 part in 3 parts water	1 part in 2 parts water
Vehicle mounted or trailed wick type wiper	260g/L water or 180g/L in dry conditions	1 part in 1.5 parts water or 1 part in 3 parts water in dry conditions	1 part in 1.5 parts water or 1 part in 3 parts water in dry conditions	1 part in 1 parts water or 1 part in 2 parts water in dry conditions
Rotary, carpet or brush wipers, pressure activated pad wipers	1Kg in 20 litres or 1Kg in 40 litres water or as directed by manufacturer's	1-12 to 1-25 solution or as directed by manufacturer's instructions	1-12 to 1-25 solution or as directed by manufacturer's instructions	1-10 to 1-20 solution or as directed by manufacturer's instructions

Spot treatment in knapsack

(assumes 1800gai/ha dose rate and the applicator is calibrated to deliver 200L/ha water volume)

Area sprayed	Product quantity (mL)				
	Roundup PowerMax (g)	Roundup Flex/ Roundup ProVantage	Roundup Vista Plus/ Energy/Sonic	Roundup Biactive/ Roundup ProActive	Water volume (L)
50m ²	12.5	19	20	25	1.0
100m ²	125	190	200	250	10.0
1000m ²	250	380	400	500	20.0



For further information, visit www.cropscience.bayer.co.uk/roundup, or call 0808 1969522 for technical enquiries.

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