

Controlling Bracken

Bracken Facts

- Bracken Fern is one of the largest living organisms on earth. Individual plants in Britain have been found that cover several hectares and, with a combined frond and rhizome mass of over 25 tonnes per hectare, that's a lot of plant!
- Individual plants are also very long lived - some plants in the UK have been dated at over 1,000 years old.
- Bracken Fern is a living fossil - one of nature's oldest, unchanged plants (spores recovered from archaeological digs have been grown in glasshouses to produce plants identical to those growing throughout Europe today).
- Bracken fern is also one of the five most common plants in the world and is spread across every continent.

Only a wonderfully adapted, fierce competitor could be so successful in nature.

Brackens Defensive Weapons

Brackens' rhizomes (their underground storage organs) are the main reason for its' great success. They store protein and carbohydrate, accumulate potash and, perhaps most importantly, they store substantial quantities of water. Eliminating Bracken can improve the moisture availability in some soils by over 50%. The ability of rhizomes to store both water and potash makes Bracken a particularly aggressive competitor on infertile, light or shallow soils. The rhizomes take up potash at a constant rate and plants can be aged very accurately by measuring the concentration of potash in their root systems. Only a few plants in Australia have been aged and all have turned out to be just over one hundred years old. Bracken rhizomes are almost unique in nature in that they can completely shut down when things get really tough in order to preserve their stored water & re-establish the plant when conditions improve.

Bracken stacks a myriad of other defences on top of its' tenacious rhizomes. It is strongly allelopathic - it produces chemicals that inhibit the growth of other plants around it. This allows Bracken to dominate in areas prone to drought and fire. With its' store of water and food it is the first plant to recover and it then vigorously inhibits plants trying to re-establish around it. (Gum trees are similarly adapted - they have a large ligno-tuber underground which stores food & water and they are also strongly allelopathic.) It's no wonder a lot of Australia's forests are dominated by Eucalypts and Bracken Fern.

On top of this, Bracken is unpalatable to many insect pests, shows strong resistance to plant diseases and, like blackberries, has masses of dormant root buds.

Bracken can be toxic to grazing animals. There have been a lot of cattle deaths in the valley in the past from acute bracken poisoning (sudden, massive internal haemorrhaging). Cattle need roughage for their stomachs to work properly and most paddocks usually have sufficient in the form of older uneaten pasture. Drought can denude paddocks however and with the flush of young growth cows have little roughage to balance their diets. Some turn to bracken with

unfortunate results. Anticipating the problem and providing hay or straw in the paddock should prevent it happening but spraying out the bracken is ultimately a cheaper & more permanent solution.

It has only recently been found that Bracken contains one of the most powerful carcinogens known to man - it is most strongly concentrated in the newly emerging crosiers or fronds (cattle or horses that die of Bracken poisoning often die from some form of cancer). Scientists in Europe are now studying Bracken seriously for the first time because of human health issues now associated with dense populations of the plant in some water catchments.

Life Cycle

Bracken fern normally spreads via spores and the fronds behave as annuals (ie: they die-off each year in winter and new fronds emerge in spring). Bracken Fern in Australia & New Zealand however is different. Sporulation is very rare and nobody knows quite how Bracken has come to be established over such large areas and how this different species came to be established in these countries in the first place. Our Bracken is also more biennial in nature, most fronds emerge in spring and many survive through the following winter before dying at the end of the next summer. Undisturbed stands therefore contain fresh, light green immature fronds, tougher, dark green mature fronds and dead fronds. The distinction between the immature, light green fronds and the mature, darker green fronds is very important when it comes to controlling the plant with a herbicide.

Control

Like blackberry, Bracken should be undisturbed for 12 months prior to spraying because it is the mature fronds that transport herbicide down to the roots to control dormant root buds. To get a really good result the stand you're spraying should have a majority of mature dark green fronds. If immature fronds predominate, you're better off waiting and doing the job properly (either later this year or even better probably summer next year).

Bracken fronds have a very waxy outer layer or cuticle and this makes getting a herbicide into the plant quite challenging. The best point of entry is through the tiny holes or stomata in the underside of the fronds through which the plant breathes, so it is important to get a very thorough coverage with the spray. If conditions are too dry then stomata will be closed and you won't get a good result, so it's essential that you spray under good conditions i.e.: when the plant is growing rapidly (in summer), when soil moisture is adequate.

There is only one herbicide to use for Bracken and that's metsulfuron (under any of its brand names eg Brush-Off). Brush-Off can be spot sprayed through a handgun (10 grams per 100 litres of water), applied through a carpet style wiper (not a rope wick) or applied by boom spray (60 grams per hectare). Boom spraying is most common & gets great long-term results.

You must add a good surfactant to Brush-Off for Bracken and I'd recommend Pulse penetrant at 120ml per 100 litres of water. You should be using high water volumes through a boom spray (200 litres per hectare) and make sure the boom runs 50cm above the top of the fronds so double overlap of the spray occurs at the top of the canopy - this will maximise coverage of both the top and underside of the fronds.

Spraying out Bracken with Brush-Off is inexpensive, highly effective & returns waste areas to productive pasture.