Using glyphosate to kill Madeira vine

Glyphosate is known by numerous trade names – including Roundup, Weedmaster Duo, Glypho, Zero, Cleanup and many more. It is the most commonly used all-purpose herbicide for killing a wide variety of weeds.

A lot of people use glyphosate against Madeira vine, although it’s not the most effective herbicide for killing this pest weed.

So, getting the best out of using glyphosate requires some knowledge of how it works and what to do / what not to do. This infosheet is aimed at giving you a better picture of how to go about getting the best results.

The chemical
Glyphosate basically works by disrupting the plants biochemical systems that allow it to produce foods and nutrients for its survival. As a consequence, the plant ‘starves to death’, as it can’t produce energy to survive.

The active ingredient in glyphosate is rapidly and tightly absorbed to soil and organic matter. There is no soil activity due to this rapid absorption. Biodegradation is by microbial action and the breakdown rates vary with soil conditions and the micro-organism population.

Most of the commonly sold glyphosate products have an in-built wetting agent. This means that generally, no extra wetting agent will need to be added to the herbicide mixture for the most common uses.

It has been found that the wetting agents in the original glyphosate products (eg ‘Roundup™’) have the ability to harm some types of frogs. Therefore, if the product is being used on water, around water or where water will flow within 4 days of the spraying, the glyphosate product must be one that has a different type of wetting agent that won’t impact upon frogs (‘Roundup Biactive™’). These products are informally known as “frog-friendly”. It is now illegal to use the non-frog-friendly products in or around water.

It is called a non-selective translocating herbicide. Basically, this means that it affects all plants (both broadleaves and grasses) and once absorbed, will be transported throughout the plant by its vascular system. It is also a water soluble herbicide and won’t mix with oil-based products like diesel.

Toxicity to animals
Studies have found that it is basically non-toxic to animals. It is practically non-toxic to fish, aquatic invertebrates, birds and bees; and has low toxicity to earth worms. However, the wetting agent in non-frog friendly products can affect the skin of some tadpoles and frogs.

It has a low toxicity to humans – about the same poison rating as table salt. Contact with the skin can cause skin rashes, especially to people with sensitive skin.
How best to use glyphosate against Madeira vine

Glyphosate isn’t generally the best type of translocating herbicide to use against Madeira vine. Starane is a more effective product, especially as a foliar spray. But, people like to use glyphosate as it’s the herbicide they’re used to and comfortable with.

**Foliar spraying**

The least effective way to use glyphosate against Madeira vine is to use it as a foliar spray (ie to spray the leaves). Although glyphosate is a translocating herbicide, it isn’t very good at being transported throughout the whole of a Madeira vine (roots and tubers) if it is sprayed onto the leaves. Somehow, it seems that the plant can stop the glyphosate from getting into all its parts.

The waxy, shiny leaves of Madeira vine repel water, and so the spray mixture doesn’t cling onto their surface. The addition of a wetting agent will help this problem. The wetting agent could be a spreader (eg BS1000 or Agral) that spreads the spray solution across the leaf surface. It could be a sticker (such as Codacide Oil, Synertrol Oil or Spraytech Oil) which sticks the spray solution to the leaves. Or it could be a penetrating agent (such as LI700 or Pulse Penetrant). These break down the waxy surface layer of the leaf, allowing the herbicide to penetrate through.

Don’t use soaps or detergents as a wetting agent, as these will bind with the herbicide chemical and make the spray solution ineffective.

Spray as many of the leaves as you can to ‘the point of run-off’. This is where the leaves are wet but not dripping spray solution into the soil. Glyphosate will kill grasses and other non-target plants that are sprayed or dripped on – so take a great deal of care.

Take care around waterways. Don’t allow the spray mixture to contaminate water. If possible spray from the water’s edge back towards the land. Take care in areas where frogs are known to exist in the ground cover. The built-in wetting agents in non-frog friendly glyphosate herbicides (and any wetting agents used) may damage the delicate skin of frogs.

If you have to use it as a foliar spray, use it to spot spray regrowing tubers (here you’ll need to use a rate of 20ml of glyphosate herbicide to 1 litre of water).

**Cut and paint**

Generally – don’t bother to cut and paint Madeira vine using a glyphosate herbicide. The problem is that the small cut surface won’t be able to absorb enough of the painted-on herbicide to affect the whole of the plant. It is better to use either the scrape and paint or the cut and dip techniques. But if you really want to, you use a mixture of 1 part glyphosate 360g/L herbicide to 2 parts water.

**Scrape and paint**

This technique involves scraping 10-20cm of the bark layer of the stem to expose the sap and water vessels underneath, and then applying the herbicide to the scraped section within 15 seconds.
By leaving the vine actively growing, the herbicide will be taken into the plant and transported through the roots, stems and leaves more effectively than if the stem were cut and the herbicide applied to the cut surface.

It is easiest to use a knife to scrape the stems, and then a paint brush or foam topped shoe polish bottle to apply the herbicide.

More than one scrape may be needed on larger stems. This may be done on either side of the stem. Make sure that in scraping the stem that it isn’t ringbarked, as this will reduce the likelihood of the technique working.

The mixing rate is 1 part glyphosate 360g/L herbicide to 2 parts water.

**Cut and dip**
This is an improvement on the cut and paint technique. The vines are cut and – within 15 seconds – dipped into the glyphosate mixture. They are held under for about 15 seconds. It is necessary to also dip the ends of the vines that go up the trees, so that herbicide goes to the tubers as well. A cut off plastic drink bottle is perfect for this. Use the same mixture rate as for cut and paint.

An improvement on this is to cut the stem and leave them in the herbicide solution overnight to suck up the chemical. This technique maximises the amount of herbicide that gets into the plants system. You can again use the cut off drink bottle, or poke the stems into a hole punched in the lid of a film canister. This approach will stop dirt or rain from getting into the herbicide mixture. But remember – the cut ends must be immersed within 15 seconds.

**How to tell if it’s working**
Don’t panic if you don’t see any drastic results straight away. Madeira vine is a particularly difficult weed to kill and the movement of the herbicide through the plant will be slow (especially during winter).

Most importantly, don’t damage the plants after they are treated. Don’t cut them with a brush-cutter; don’t pull them out of the trees; don’t spray them with other chemicals; don’t burn the area. This will only stop the herbicide from doing its work properly.

Foliar spraying and scrape and painting will result in a progressive withering of the leaves up the stems. The leaves higher up will look healthy and unaffected, which can make you think that it’s not working. Be patient and give it time.

Cut and paint and cut and dip will see the leaves up the trees wither faster. This is because their water supply (ie roots) has been cut off.

As the sap takes the herbicide through the plant, it may also affect the tubers. If the tubers hang onto the stems for a long time (and sometimes they’ll hang on for more than a year), they’ll gradually wither away as they use the energy reserves stored in the tuber.

If they fall to the ground, they will most likely shoot and start to grow. Be patient. Some of these will have glyphosate in them and will die as they start to metabolise the chemical stored in the tuber. If you can’t be patient, you can walk around and pick them up. They can then be bagged and thrown away in your wheelie bin. But don’t deliberately knock around the vines to make the tubers fall off. They may fall...
off before they get enough chemical in them and you just use up your energy that is better used doing more useful things.

Sometimes the tubers even start to shoot while they are still attached to the vine. This is a survival mechanism that kicks in when the plant is stressed because it is dying. Again, be patient and have faith in the herbicide. These tubers may have glyphosate in them. They will grow a while, but then the herbicide will take effect and they should die.

So, the consistent message is … be patient and have faith. Give the herbicide 3 months to do its stuff.

Follow up

Don’t expect glyphosate to be the silver bullet. You’ll need to monitor the problem and be prepared for follow-up control over the next couple of years at least.

That may involve tracing back the stems that you’ve missed – they’ll be easy to find as they’ll have healthy green leaves six months after the initial treatment.

You’ll need to get rid of the tubers on the ground that have sprouted and survived. This can be by spot spraying or by pulling/digging. Start on the sprouting tubers in areas that receive high levels of light. They will grow the quickest. Tubers that sprout in darker conditions tend to stay in a state of suspended animation until there’s a break in the canopy and the light level increases. These tubers in the dark can wait until you have more time.

The best thing about Madeira vine is that they don’t produce viable seed. So if you get rid of all the tubers through persistence, you can eradicate the weed from your property. Another good thing is that the tubers don’t float very well and tend to die if left in water for longer than 30 days.

As with using any herbicide, read and follow the directions on the label. Wear appropriate protective clothes and safety equipment. Store it appropriately and securely.