

CAMPHOR LAUREL CONTROL TECHNIQUES

The following information has been compiled from the teaching over 10 field days of tutors with a total of several decades experience with controlling Camphor Laurel: Gary Cox and Bruce Hungerford, formerly of the Department of Natural Resources (now Office of Water), farmer/forester Jim O'Brien, who during his time with NSW State Forests carried out extensive trials of stem injection of several thousand tonnes of Camphors, and Weed Inspectors from Far North Coast Weeds, who always have valuable hints for control of various weeds. These field days were variously sponsored by Tweed Landcare Inc, Tweed Shire Council and the Catchment Management Authority.

The Camphor Laurel (*Cinnamomum camphora*) was introduced from China and Japan in the 1820's as an ornamental street tree and became extensively used for shade in school yards and grazing paddocks. It is too large a tree for a small suburban garden.

This vigorous, long-lived tree has become a major weed in Tweed and neighbouring Shires and control of the tree is necessary to prevent its compromising the diversity of native vegetation. For instance, the shade of closely growing Camphors can destroy certain native vegetation that needs full sun from germination stage onwards. On the other hand, in some situations native subtropical rainforest species will germinate and grow for several years beneath Camphors which in this case act as a protective canopy and also shade out grasses and other weeds that might compete with the rainforest seedlings. However, these Camphors must be killed once the young rainforest saplings reach, say, 2-4m and actually stop growing because of their demand for more light.

Far North Coast Weeds suggest in their Camphor Laurel Control Strategy document (2006) that when resources (manpower, money, time) are limited, scattered outlying occurrences of Camphor be treated first to contain the problem back to "core" infestations. Thus, small outbreaks can be treated relatively quickly, then a long-term plan of management for thick infestations drawn up. As a general rule, this strategy of working from the areas with the least weeds and securing these before attacking the worst problem areas is a good one for any landowner: it is morale-boosting to achieve a short-term goal and it shows you what the whole project can eventually achieve.

The aims of the field days/workshops mentioned above were 1) to discuss basic priorities for setting up a long-term Camphor control programme, especially for landowners with larger properties; and 2) to demonstrate techniques of killing Camphors at the first attempt, as much time is wasted by landowners who do not follow best practice methods and have to revisit half-killed trees. Short sessions on their own properties for people to learn or brush up on their technique may also be arranged at any time, at no cost to the landowner. ***For more information, ring Janet Townsend (02 6677 9326).***

The following is a summary of the ***STEM INJECTION*** techniques demonstrated at the Camphor Control workshops.

It is recommended that you begin by treating single trunk Camphors of 30cm diameter or less, to perfect your technique, before moving on to larger trees, especially multi-trunked specimens. With any of the techniques, as well as treating the trunk of the tree, it is a good idea to treat any exposed roots with some cuts and insertion of herbicide along their length.

What chemical?

Glyphosate 360g/L is the recommended herbicide, ***used undiluted.***

Hint: If you have only a few trees to treat, glyphosate may be purchased in small quantities at a supermarket but you must read the label to see that the ***active constituent*** is ***glyphosate 360g/L.*** You then use the product straight from the container without diluting. (Many glyphosate products sold in supermarkets have already been diluted, ready for other garden uses.)

The most economical purchase of glyphosate 360 for landowners with many Camphors to treat is a 20 litre container of the herbicide (available in several brands but it is a good idea to purchase one that claims to be frog-friendly [eg Roundup Biactive, Nufarm Weedmaster Duo, etc]. This will be essential at any rate if you wish to use the product for spraying.)

How much herbicide per tree?

(Note that the amount of herbicide recommended here [ie taught at the Camphor Laurel Control workshops] is more than that recommended in the instructions for use that accompany the herbicide. The amount recommended at the workshops has been found in extensive trials in Northern New South Wales by impartial, skilled operators to be necessary for a near-100% kill rate on Camphors of all sizes. [See Note 1].)

The basic rule of thumb, that will cover all situations, is to use a total of **at least** 1ml of undiluted glyphosate for every centimetre of tree diameter (**estimate diameter at the base of the tree**). For example, if the tree is 30cm at the base, you will need at least 30ml of undiluted glyphosate to be sure of killing that tree.

If you do not find this rule helpful, just remember **4ml of undiluted glyphosate delivered into holes made around the circumference of the tree as near to the base as is practicable and no further than 10cm apart** will give you the correct total amount for that tree.

- **Ensure you do not skimp** on this total amount for a large Camphor with a very full, spreading canopy – usually paddock trees. **It is essential to make sure of 4ml of undiluted glyphosate in each hole or pocket you make around the tree to kill these specimens.** (*Jim O'Brien – NSW State Forestry trials 1997-8*).
- Likewise, this amount is essential for a tree that has branches coming horizontally off the trunk. These trees are often found on the edge of forest, with branches reaching out for the light. **Make double the number of holes below a horizontal branch** to receive extra herbicide. (*Jim O'Brien – NSW State Forestry trials 1997-8*).

What equipment for getting the herbicide into the tree?

An inexpensive garden squirter, with nozzle set to deliver a stream, will do the job. (These deliver from 1ml to 1.25ml per squirt, depending on the brand.) The secret with this trigger action garden sprayer is to deliver the glyphosate with steady, gentle pressure on the trigger, not sharp, fast squirts which can cause the chemical to splash back on you.

The equipment used in the demonstration at the Camphor Control workshops is a Velpar Spot Gun which comes with a 2.5L or 5L backpack. (Other equipment commonly used is a Phillips tree injector.)

How to get the herbicide into the tree?

The idea is to deliver the herbicide evenly around the tree into holes or pockets you make to receive it. The holes are deep enough to go through the bark into the creamy coloured sapwood, angled downwards to hold the herbicide, and deep enough to hold at least 4ml herbicide. The holes should not be more than 10cm apart as experience has shown that the tree is capable of producing new sapwood between holes any further apart (*Darren Rolles, pers. comm.*)

The herbicide must be delivered into each hole immediately after the hole is cut (do not leave it longer than 20 seconds).

How to make the holes?

This can be a matter of your own ingenuity, as long as each hole reaches the sapwood and will receive at least 4ml of undiluted herbicide. However, the following are the methods demonstrated at the workshops.

- (a) **A tomahawk or a Tordon Axe** can be used to cut through the bark into the sapwood, with holes at comfortable waist height for the operator. Leave a tomahawk blade width between each cut. The herbicide is delivered immediately into the cut as the cut is held open with the tomahawk blade.

A tomahawk cut will hold only 2ml of herbicide before it begins running out the ends of the cut. Therefore, with this method, it is necessary to make a second row of cuts above the first row to end up with the required amount of herbicide for that tree. (Remember, however, that the total amount of herbicide is calculated for the diameter at *the base* of the tree, so you may even need a third or fourth row of cuts if the diameter narrows in considerably at waist height.) It is a good idea to offset each further row from the previous one to form a “brickwork” pattern that will optimise the area of sapwood treated.

Do not be tempted to make cuts too close together in the one row as you may end up ringbarking the tree, which will prevent it pumping the herbicide around efficiently. **The easiest tree to kill with stem injection is a whole, healthy specimen whose sap is able to circulate freely throughout the tree.**

(b) **A cordless drill** may be used to make holes with centres 10cms apart. A 10mm drill bit is large enough to do the job (a larger bit will run the drill battery down too quickly.) You can use a general purpose bit (Viper bit recommended) or an auger bit. The auger bit is expensive and requires regular sharpening by someone with tool-sharpening skills but because its action draws it into the tree with little effort required by the user, it is ideal for those with hand joint problems. Because of the point on the end, the auger bit can also be easily inserted into very small diameter saplings.

Hints for those using a drill for the first time:

- Wood shavings will clog the general purpose drill bit unless you withdraw the drill (still running) almost out of the hole several times during the procedure to clear the shavings out of the hole.
- Normally drills will have a reverse switch which can be used if the drill becomes stuck in the hole.

Again, remember with drill holes to insert the glyphosate (4ml) immediately the hole has been drilled.

(c) An extremely effective and fast technique if you are experienced with **a chain saw**, is to work around the base of the tree cutting pockets with approximately 10cm between them. Another person can follow you around the tree at a safe distance behind you, injecting the herbicide into these pockets. You need **8-12ml per cut** as there will only be about half the number of saw cuts as you get drill holes when using a drill.

With this technique, there is a high risk of kickback injury if the chain saw’s guide bar is not inserted correctly into the tree. Thus, even if you are familiar with chain saws, it is recommended that before you try this technique you have someone experienced with this method demonstrate it for you, or that you attend an accredited chain saw course.

Hint: For the person delivering the herbicide into the pockets, a handy accessory for the Velpar Spot Gun is a 30cm long nozzle which replaces the short nozzle that comes with the Spot Gun. The long nozzle (cost around \$36) means you do not have to bend to deliver the herbicide.

(d) Using **a block hammer and 15-20mm chisel** to make the holes (a claw hammer is too light for easy use): This method is successful on trees up to 1 meter diameter (not tested on larger trees whose bark might be difficult to penetrate with these tools). This is handy if both tomahawk and drill are unavailable and you are not accustomed to chain saws. Even when most of the time the work is done with a drill, the chisel can save the day when the drill battery runs out when you have, say, 3 holes left to drill in a tree! The chisel is also useful for tight corners. Again, remember: 4ml of undiluted glyphosate 360 into each cut!

Hint for those not familiar with the use of a chisel: The chisel is hammered into the tree with the bevelled edge against the tree.

OTHER TECHNIQUES for control discussed at the workshop:

Cut stump method: Cut the trunk(s) close to the ground and immediately apply undiluted glyphosate to the exposed surface. It is advisable to make cuts or gouges into the cut surface with chain saw, drill, chisel etc to increase the area receiving the herbicide. Likewise, any exposed roots should be scraped to expose the sapwood and further herbicide applied here.

Basal bark application of herbicide (for saplings up to 10cm diameter): Garlon 600 diluted with 60 parts diesel or Access diluted with 60 parts diesel. Paint or spray to fully wet stems from ground level to 30cm above ground. The optimal time to do this is in Spring through to the beginning of autumn. Results are poor in winter. (*Peter Schweitzer, pers. comm.*).

Spraying of seedlings up to 1m: 1 part glyphosate 360 to 50 parts water, plus penetrant/wetting agent such as Pulse. Spray to wet all foliage.

Grazon, which does not kill grass, is an effective chemical for long-term results in grazing paddocks as it remains residual in the soil for a period. However, increasing emphasis on soil health in land management practices may lead to reservations about residual herbicides. Grazon is another chemical that gives poor results in winter and is best used from Spring through to the beginning of autumn (*Peter Schweitzer, pers. comm.*).

DO NOT USE GRAZON ANYWHERE NEAR WHERE NATIVE TREE GERMINATION IS DESIRED.

Non-chemical methods of control:

Debarking, ringbarking, cut and mulch stump with heavy plastic, etc.

(An excellent summary of non-chemical methods of Camphor control may be found in the “Camphor Laurel Kit”. This publication may be downloaded in separate chapters from the web site www.northcoastweeds.org.au [go to documents/regional plans and strategies and scroll down].)

Efficient tools will often cut down on the use of herbicides. For instance, a Spear & Jackson Never Bend draining spade (SJ-2154 HK) with its long, narrow blade sharpened at the end will dig up quite large saplings with hardly any soil disturbance. A fairly expensive item, but will last you a lifetime.

GENERAL COMMENTS

Even if later on you wish to fell the tree, it is strongly recommended that you first stem-inject the tree to kill it where it stands and wait about 16 weeks to allow a total kill before felling it (*Jim O'Brien, pers. comm.*). ***A whole tree (rather than a stump) will conduct the herbicide around the tree's system efficiently and give a sure kill, reaching all the roots.*** Thus, even if the tree is a sapling with a stem of only finger thickness, rather than cut it and paint the base with herbicide, a more sure result will be obtained with a chisel (or secateur blade) cut into the sapwood each side of the stem at the base with, say, 2ml undiluted glyphosate into each cut. The dead sapling can be snapped off when it is dry in a few months. In a bushland situation, it is recommended that you leave any larger dead trees standing, to disintegrate over time.

Note 1: *It has been necessary to obtain an “off-label” permit for the Far North Coast of NSW to use glyphosate 360-based herbicides at the rate of 4ml undiluted product per cut into cuts 10cm apart to stem inject all Camphor Laurels, regardless of their basal diameter. The registered rate of 2ml undiluted product into cuts 13cm apart for Camphors with a basal diameter greater than 25cm is insufficient to kill Camphors with a large total leaf area. And with the exceptionally vigorous growth of Camphors on the Far North Coast, the diluted rate in the instructions for trees with less than 25cm basal diameter too often gives disappointing results.*

(*Australian Pesticides & Veterinary Medicines Authority Permit 10615 granted 19/5/08 – see website www.apvma.gov.au, and go to “Permits Search”.*)