

-----Original Message-----

Sent: Tuesday, March 20, 2007 9:05 PM

Subject: *Leucaena leucocephala*

Dear Sirs,

After clearing land in the Abaco's, North Bahamas, we have become inundated with the above tree, known there as the Jumbay tree (we understand it is also called the Lead Tree.) We have tried various ways to remove this tree and thousands of seedlings.

We have tried removing by dragging the trees out with machinery. Unfortunately we tend to lose many wanted trees as the roots travel so far and the earth base is shallow. We have cut back and poisoned, we have sprayed the leaves, with both a watered mixture and also neat poison [Roundup]. The trees appear to die and a few weeks later burst back into life.

Because of its extremely invasive nature we desperately need to eradicate this tree before it spreads further and further over the island. We understand this has been achieved in Dade County and would appreciate advice to do the same.

We thank you for any help you may be able to offer.

Regards,

A.B.



GAYLE EDWARDS

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For cut-surface applications, each stem is cut as level as possible, to minimize runoff. This is usually done at a height of 2 or 3 inches (leaving some stem to treat as well as the cut surface). Then, using a backpack sprayer or handheld spray bottle, the herbicide mixture is applied to the top and sides of the stem immediately after the stem is cut. Keep the interval between cutting and spraying as short as you can, cutting and treating one tree at a time, to get the best results. Follow the label instructions for basal bark treatment. Also, be very careful not to exceed the maximum rate of herbicide per acre. This can be a challenge in areas with dense (what we call “dog-hair”) stands of young trees.

Good luck,

James G. Duquesnel

Dear A.B.,

My name is Jim Duquesnel. As a park biologist in Florida, I frequently deal with the species you mention, lead tree or jumbie (*Leucaena leucocephala*), and have been working with it for over 17 years. It is indeed a tough customer, one of the hardest species to control that I have encountered. But, by using diligence and integrated pest control methods, it can be managed to acceptable "maintenance" levels. Eradication is nearly impossible; as long as the conditions and traffic that first brought seeds to the site continue, you will continue to see re-infestations from areas outside your control.

Especially early on in a control program and if *Leucaena* is well established, there will be a seed bank of millions of dormant seeds just waiting for soil disturbance to trigger germination. This is one reason I try to avoid hand-pulling or mechanical removal for this species. Instead, when possible, I use cut-surface applications of herbicide and try to keep disturbance of soil and leaf litter to a minimum. After lead tree debris is removed, I recommend placing a 4-inch deep layer of wood chip mulch over the site to help reduce survival of the seedlings that do sprout. *Casuarina* (Australian pine) mulch does an excellent job.

Another of the control techniques that we use is to have school children or volunteers remove the flowers and seed pods from the trees. Removing the pods before they can open prevents the next generation of seeds from reaching the soil and helps decrease the number of years of follow-up treatments you will be committed to. As *Leucaena* matures quickly, it is very important to monitor the site every three months, and to prevent new recruits from producing another crop of seeds.

As you have heard from Dow's Scott Ditmarsen, *Leucaena* seems to respond best to high rates of triclopyr ester. We are currently using Garlon 4 at rates of 30% in cut-surface and basal applications. As Garlon 4 is a relatively volatile herbicide, you must be careful using it around sensitive non-target species. Here in the Keys, I have found airborne vapors can have an impact on some species, particularly if they are within a meter or two of the treated tree, and if there is little air movement. Buttonwood mangrove (*Conocarpus erecta*) and strangler fig (*Ficus aurea*) are two of the species that have most often shown susceptibility. Also, you must be careful to apply the product at low spray pressures to avoid spatter onto nearby non-target plants, and avoid runoff onto the soil.

We usually apply a 30% mix in an oil diluent (mineral oil or vegetable oil-based, with the latter being preferred). Higher rates can be used but they require calibrated sprayers to measure precisely the amount being applied, without exceeding 15 milliliters per application. Read the label's recommendations regarding "thinline basal applications" at this website: <http://www.epa.gov/espp/effects/triclopyr/label-26719-40.pdf>. Calibrating a spray bottle is a simple exercise, and using the higher rates allowed with thinline applications may provide better control. Still, I am pretty sure that we kill at least 95% of the treated trees using the methods described above. But, if you are considering a thinline application of Garlon 4 at higher (50% to 75%) concentrations, this application of "2 to 15 milliliters per single stem" requires a "calibrated sprayer."

Calibration of an inexpensive one-quart spray bottle is a very simple procedure. Start with a spray bottle that has chemical-resistant Viton o-rings, such as Delta Spraymaster. Using water or, even better, the same solution you will be dispensing. Simply apply spray directly into a small liquid-measuring container. Nalgene's 50 ml graduated cylinder, available from Forestry Suppliers, is chemical resistant and durable. It also has molded calibrations that won't dissolve and wipe off the way ink or painted markings often do when exposed to oil-based herbicides and diluents.

Make sure that you compress the sprayer's trigger slowly and steadily; you are trying to standardize the volume dispensed. Use enough compressions that any minor differences will become insignificant, 10 or 20 compressions are easy numbers to work with. Divide the volume collected (let's assume 40 ml) by the number of trigger compressions (let's say 10, as an example), and you now have a calibrated sprayer (4 ml per compression). If like me, you have poor short-term memory, use a marker or better still, when working with Garlon 4, use an oil-resistant paint, and write the volume per squirt on the bottle.

Use of a spray colorant (usually red or blue) is very helpful, making it easier to see where the spray is going, whether or not there is overspray or spatter, and it helps to detect spray on clothing or skin, or coming from leaky equipment, sooner than would otherwise be possible.

It is my opinion that using a lopper (pruning tool), even a very sharp one, will crush some of the stem's vascular system, reducing the movement of herbicide and reducing its effectiveness. This is especially true of anvil pruners, and perhaps somewhat less true of by-pass pruners. In either case, I prefer to use a very sharp saw. I have had very good success using the incredibly sharp wood-handled Corona Razor Tooth, 13-inch curved pruning saw (www.forestry-suppliers.com/). Corona also makes a folding pocket saw, a nice convenience, but once my crew members get their hands on the 13-inch saws, there is no going back to the smaller saws. The unanimous consensus is the 13-inch saws are much easier and faster to work with. If you do buy the 13-inch Corona saws, for your own safety, be sure to buy the protective curved saw sheath that is made for this saw. An extra blade or two is a good idea as well.

We have recently discovered that Fast Orange hand-cleaner helps to remove the plant resin that cutting *Leucaena* leaves on these blades. The resin will otherwise build up like a layer of varnish, until it makes the saws very difficult to use.

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