



# TREE INJECTION APPLICATIONS

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Phyton-27® is a fully systemic bactericide and fungicide labeled for a wide variety of ornamental plants, nursery crops and trees. Its unique composition goes beyond the traditional disease control of copper-based products without the traditional side effects. Phyton-27® works within the plant to provide integral disease control and often enhances overall plant health and vitality. Always consult the appropriate product label prior to use.

## 1. Prepare the injection fluid

Wear glasses or goggles and rubber gloves when mixing. Observe the precautionary statement on the label. Phyton-27® is a DANGER pesticide. Store partially-used bottles with special care to avoid accidents. Store above 45°F. Do not freeze.

Pour a quart or two of water into the container. Shake the Phyton-27 well, and then add the prescribed dosage of it into that water. Stir or shake until mixed. Then add the remaining amount of potable water and stir or shake briefly. Gently mix for two minutes and again in four hours if not fully used. Use within 48 hours after mixing.

## 2. The art of drilling holes and inserting tees

Locate holes near the soil. Use the tops of exposed root flares as sites. Excavation and injection below the soil line is optional. For mature shade trees, use a brad-point bit and drill a hole about 3/4" deep, which reaches into the wood beneath the bark. For younger and thin-barked trees, the same principles apply. Smaller tees will give better seating. Drill slowly so the hole is not burnished or polished by heat and friction. Then insert a tee into the hole. Gently hand-tighten it to be sure it is tight and secure. Use a mallet only if a tee pops out. Do not over-tighten or place tees too deeply. Each tee is tapered. If it is inserted too tightly or deeply, it may block access to vascular uptake. The tapered shape is designed to optimize uptake.

Continue drilling holes, inserting tees and looping the tubing around the trunk. Use of sharp drill bits (preferably brad point), slow drilling, prompt tee insertion, snug but not too deep tee placement and prompt hook-up of the injection liquid can make a

significant difference between slow and fast up-take times.

## 3. Equipment

Various methods and kinds of equipment may be used. Follow the directions of the vendor. Do not use equipment made of galvanized metal.

## 4. Bleed air out of injection tubes

Hook up and inject as soon as possible after the holes are drilled so they do not dry out. Slip the free end of tubing from the harness' connecting tee onto the regulator outlet. Remove temporarily a tee from the far side of the trunk, open the cut-off valve, then give the pumper a few pressurizing strokes. This will push the air out of the harness system, but not into the tree, as it fills with Phyton-27. Re-insert the removed tee when air bubbles and foam have been flushed out of the harness. Wear gloves.

## 5. Prune out diseased wood

If treatment is for Dutch elm disease or oak wilt, remove dead and diseased limbs after injecting. Prune oaks only during the recommended times for your location, in order to avoid airborne re-infection of the oak tree. Diseased branches and limbs should be removed from the tree. Usually the preferred time is a few days after injection so the fluid has had time to approach the diseased area. However, in the case of wilting which is proceeding rapidly, removal before or right after treatment is preferable.

Prune back toward the main stem until all wood showing brown streaking under the bark has been removed, plus ten feet of clear wood. Disposal of

all pruned wood is important because it reduces breeding habitat for insect vectors and spore dispersal, which may reach other trees.

Be sure to sterilize all tools after cutting diseased branches and limbs. It is possible to transmit disease from cut to cut and tree to tree with cutters and saws.

## 6. Re-Injection

Due to the newness of the outbreak, no information about re-injection for Sudden Oak Death is currently available. If indications of Dutch elm disease or Oak Wilt re-appear in the year(s) following treatment, re-inject and re-prune. Preventive re-injection need not be done any sooner than in the third year following injection, unless intense disease pressure develops in the area.

Locate the re-injections sites on the trunk a few inches above or below the original sites and midway between them.

## INJECTION TIPS

**Leaf drop after injection** – Occasionally a tree may drop some green leaves a day or two after injection. This correlates somewhat with mild, damp, early-summer weather, particularly in the Midwest. It occurs infrequently but can be startling. The tree will re-leaf fully.

**Dark sediment settles in the plastic tubing during injection** – This is normal and has no consequences.

**Red (Slippery) elms and red oaks** have very different vascular systems and can be damaged at standard white elm/white oak dosage rates – that is why they have a separate, lower dosage rate.

**Warm, partly cloudy or clear days with light breezes are best for rapid uptake.** Very cold, damp nights and very hot, dry days are worst for uptake. Uptake will stop during rainfall and will resume when rain ends. In an abnormally dry period, try watering the lawn under the trees for a couple of days before injecting. In summer, early morning hours are generally best. In autumn, warm afternoons are best. In most areas, prompt uptake is more likely from mid-summer to autumn and less predictable earlier.

**Adverse tree health, history or location can slow down uptake** – Negative factors may include: physical damage from construction or grading, heavy disease clogging the tree, gas line leaks near the roots, exposure to herbicides (near golf green), or location close to a lake or water table elevation. Injection with another product within the two prior years may also extend uptake times. Pick favorable injection time and weather with special care when treating such trees. Leave the system hooked up as long as possible but not for more than 24 hours; sometimes uptake will occur rapidly during the night or pre-dawn hours.

**Reduce pH to 6.5 or less** – In high alkaline areas out West or over limestone, use a water buffer to improve uptake and efficacy.

**Metals Alert** – Phyton-27<sup>®</sup> can interact with some metals and cause phytotoxicity. This interaction will not occur with stainless steel, coated steel, fiberglass, brass or plastic.

**Root Graft Alert** – Diseases such as Dutch elm disease and oak wilt can be transmitted underground via naturally grafted roots. A tree infected from the bottom up may be more diseased than symptoms in the crown indicate.