

HOW TO INJECT PALMS WITH ARBORSYSTEMS DIRECT-INJECT TREE INJECTION SYSTEM

1. Use only ArborSystems Direct-Inject chemicals with your unit as they have been formulated specifically for the Direct-Inject System.
2. Measure the circumference of the palm at chest height. Follow the label directions and application dosages in this booklet to determine the number of injection sites and the amount of chemical to be injected at each site.
3. Palms are treated using ArborSystems Palm or Portle Injection Tips, depending on the husk density. Choose which injection tips will work best for the palm you are treating and attach the appropriate tip to the ArborSystems Tip Setter. Using multiple tips will speed the injection process.
4. At chest height, tap the injection tip into the palm using the Tip Setter, then disconnect the setter from the tip leaving the tip in the palm. Repeat until all tips are set in the palm. **Do not attempt to insert or remove tips with the injection unit as that is likely to damage the injection unit.**
5. Connect the Direct-Inject unit to one of the tips already inserted in the palm.
6. With a smooth motion, firmly squeeze the injection unit handles. Apply equal pressure on both handles—unequal pressure may bend or break the tip. The injection unit is preset to deliver a 1 ml dose of chemical with each full stroke of the handles. Repeat until the required amount of chemical has been injected at the injection site.
7. Remove the injection unit from the tip leaving the tip in the palm.
8. Move to the next tip and attach the injection unit to the tip. Continue making injections at all injection sites. After all injections have been completed, use the Tip Setter to remove the tips from the tree. When removing tips from the tree, use a straight rearward motion. Avoid rocking motions as that may damage tips.

9. Clean tips after each use by submerging in alcohol or diluted bleach.
10. At the end of the day, water flush the Direct-Inject unit to prevent clogging.

Avoiding chemical waste: Any time you remove a chemical pack (after making injections), there is approximately 2.5 ml of chemical retained in the injection unit. To avoid wasting this chemical, remove the chemical pack before making your final injections. You will be able to make two additional 1 ml doses with the chemical remaining in the injection unit.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store in a cool (>45°F) place with containers in an upright position. Do not expose material to high temperatures (>85°F) for prolonged periods.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Handling: Non-refillable container; do not reuse or refill this container. Completely empty pack into application equipment, then offer for recycling, if available, or dispose of empty pack in a sanitary landfill or by incineration.



NOTICE OF WARRANTY
ArborSystems warrants that this product conforms to the chemical description on the label and is reasonably fit for use when used strictly in accordance with the directions on the labeling. To the extent consistent with applicable law, ArborSystems does not make or authorize any agent or representative to make any other warranty, guarantee or representation, express or implied, concerning this product.

ArborSystems®, Portle® and Wedgle® are registered trademarks of ArborSystems.
Springer™, Direct-Inject™ and WedgeChek™ are trademarks of ArborSystems.
Direct-Inject™ unit is protected by U.S. Patent #5,901,498
Wedgle® Tip is protected by U.S. Patent #5,239,773
WedgeChek™ is protected by U.S. Patent #5,797,215
Portle® Tip is protected by U.S. Patent #7,178,286

An ArborSystems® Direct-Inject™ Chemical
• Easy • No Drilling • Saves Time and Money
For seasonal suppression of lethal yellows
(*phytoplasma* disease) on palms.

SPRINGER™ Systemic Antibiotic

ACTIVE INGREDIENT:

Oxytetracycline hydrochloride..... 4.3%

OTHER INGREDIENTS..... 95.7%

Total..... 100.0%

Keep Out of Reach of Children
CAUTION

See inside for First Aid, additional Precautionary Statements and complete Directions for Use.

Use within 6 months of the
container-stamped packaged date.

SPRINGER™ Systemic Antibiotic

An ArborSystems® Direct-Inject™ Chemical
• Easy • No Drilling • Saves Time and Money

For seasonal suppression of lethal yellows (phytoplasma disease) on palms.

Intended for use by arborists/applicators, grounds maintenance personnel and landscapers.

To be used only with the ArborSystems Direct-Inject™ Tree Injection System.



EPA Reg. No. 69117-10 EPA Est. 69117-NE-1

FIRST AID

If Swallowed: Immediately call a poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

If on Skin or Clothing: Take off contaminated clothing. Immediately rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If in Eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

For non-emergency information concerning this product, call the National Pesticides Information Center (NPIC) at 1.800.858.7378 (NPIC website: www.npic.orst.edu).

Note to Physician: There is no specific antidote available. Treat patient symptomatically.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if swallowed. Avoid contact with skin or clothing. Causes moderate eye irritation. Thoroughly wash with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Wear long-sleeved shirt and long pants, socks, shoes and chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride (PVC), Viton, Selection Category C). Avoid contact with eyes or clothing. Wear protective eyewear such as goggles or shielded safety glasses. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

PERSONAL PROTECTIVE EQUIPMENT

Some materials that are chemical-resistant to this product are listed below. Applicators and other handlers must wear: Long-sleeved shirt and long pants, shoes plus socks, chemical-resistant gloves, such as polyethylene, butyl rubber, neoprene rubber or Viton and protective eyewear such as goggles, face shield or safety glasses.

USER SAFETY REQUIREMENTS

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

- Users should:**
- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
 - Immediately remove clothing/PPE if pesticide gets inside; then thoroughly wash and put on clean clothing.
 - Immediately remove PPE after handling this product. Wash the outside of gloves before removing. As soon as possible, thoroughly wash and change into clean clothing.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

ARBORSYSTEMS® DIRECT-INJECT™ TREE INJECTION SYSTEM

The ArborSystems® Direct-Inject™ Tree Injection System, along with ArborSystems patented Portle® Tips and Palm Tips, is the ideal way to treat palms. This no-drill trunk injection method is easy to use. Palm and Portle Tips have been designed to penetrate the thick outer husks of palms. Several tip options are available allowing you to choose the tip best suited to treat palms of various husk density.

Most palms can be treated in as little as five minutes or less, allowing applicators to make treatments quickly. There is no need to wait for absorption (translocation); chemical is injected into the active portion of the palm without drilling. Because the chemical is placed right where the palm can use it, effectiveness of the chemical is increased. Use in sunny or overcast conditions, rainy or dry, at any time of day. As no drilling or implants are required, you can treat palms repeatedly with no threat of long-term or permanent damage. This system minimizes wounding and promotes long-term plant health and vigor.

RESTRICTIONS

This product is not to be used on palms that will produce food within the year following treatment. Do not use any part of treated palms as food or feed.

This product contains the antibiotic oxytetracycline. To reduce the development of drug-resistant bacteria and maintain the effectiveness of this and other antibacterial products, this product should be used only to treat or prevent infections that are proven or stongly suspected to be caused by bacteria. This material is not to be used for medical or veterinary purposes.

PRODUCT INFORMATION

SPRINGER™ Systemic Antibiotic is a ready-to-use antibiotic for use on palms. SPRINGER™ Systemic Antibiotic provides suppression of lethal yellows disease (*phytoplasma* disease) in palms.

SYMPTOMS

Symptoms vary significantly based on the palm species, but generally occur in sequence; fruit drop, flower/seed wilt, excessive yellowing of the canopy starting with the newest fronds and finally death of the palm bud leading to death of the entire plant. Sometimes a younger frond will yellow early in the process. This “flag leaf” is often an early visual symptom, but not present in every case.

TREATMENT

Preventative treatments are more effective than therapeutic treatment in palms showing disease symptoms.

As a therapeutic measure, immediately begin applications to palms exhibiting symptoms and continue on a 3- to 4-month treatment schedule. Palms with over 25% discolored leaves are unlikely to respond to treatment.

Preventive treatments are recommended to protect palms in areas where lethal yellowing is known or likely to occur. Apply preventive treatments any time during the growing season once every 3 to 4 months.

Tree	Disease	Dosage per Injection Site
Palm	For suppression of Palm Lethal Yellows disease (Phytoplasma disease)	6 ml per 6" of trunk circumference measured at chest height.

Palms Susceptible to Lethal Yellowing	
This chart is only intended as a general guide. Susceptibility may vary depending on your location and evolving conditions. Contact a trained arborist familiar with conditions in the area to determine treatment strategies.	
High susceptibility	Coconut Palm, all cultivars, <i>Cocos nucifera</i> Christmas Palm, <i>Adonidia merrii</i> Loula/Konna Palm, <i>Pritchardia affinis</i> Thurston Fan Palm, <i>Pritchardia thurstonii</i> Tonga/Figi Fan Palm, <i>Pritchardia pacifica</i>
High/medium susceptibility	Canary Island Date Palm, <i>Phoenix canariensis</i> Clustering Fishtail Palm, <i>Caryota mitis</i> Medjool Date Palm, <i>Phoenix dactylifera</i> Sylvester/Wild Date Palm, <i>Phoenix sylvestris</i>
Medium susceptibility	Aricuriroba, <i>Syragus schizophylla</i> Palmyra Palm, <i>Borassus flabellifer</i> Princess Palm, <i>Dictosperma album</i> Senegal Date Palm, <i>Phoenix reclinata</i> Windmill Palm, <i>Trachycarpus fortunei</i>
Medium/low susceptibility	Chinese Fan Palm, <i>Livistonia chinensis</i> Latan Palm, <i>Latania lontaroides</i> Queen Palm, <i>Syragus romanzoffiana</i> Spindle Palm, <i>Hyophorbe verschaffeltii</i>
Low susceptibility	Washingtonia/Mexican Fan, <i>Washingtonia robusta</i> Triangle Palm, <i>Dypsis decaryi</i>
Undetermined level of susceptibility	Belmore Sentry, Cabada, Cabbage/Sabal, Cliff Date, Footstool, Gebang/Buri, Giant Fishtail, Kentia, Mazari, Miniature Sugar, Palma De Lluvia, Rootspine, Seashore
Species thought to be resistant to Lethal Yellows	Bizmarckai, Foxtail, Royal, Solitaire