

# New Tree Fertilization Standards

By Tim A. Johnson

The Tree Fertilization Standards clause of the ANSI A300 for Tree Care Operations—Tree, Shrub and Other Woody Plant Maintenance—Standard Practices was completed, approved, and published in December 1998. It will be available from the NAA, ISA, or ANSI.

The Fertilization clause is another silver bullet to be placed next to the Pruning clause in your arsenal for promoting professionalism and producing high-quality Tree Health Management Services.

Are you familiar with the pruning clause of A300? If so, are you using them? How?

The arborists who are using A300 standards as intended, continue to improve their job specifications, job orders, production, and communication, which equals customer satisfaction, tree health and, ultimately, profits.

The A300 standards are performance standards only—a measuring criteria, a point of departure—and supercede any other tree care standards previously developed.

Note: The ISA's pruning guidelines are *performance guidelines* (How To's) only and should not be confused with the A300 *performance standards*. They are complimentary to each other, yet A300 is the primary document.

A300 was created as a guide for drafting tree care specifications. It should be adapted in whole *and* in specified parts. In other words, just saying "prune or fertilize the trees to A300 standards" is not a complete or clear specification. One should say, "all fertilization (or pruning) shall be performed in compliance with A300 standards (this statement encompasses the whole standard eliminating the need to describe general information concerning cuts, safety, etc.) *and to the following specifications.*" Then list the specific items for a tree or group of trees (see box for examples).

The ANSI pruning standards have been available since 1995, yet they are under-utilized. Change takes time. We still see guidelines that don't reference A300 from organizations that should know better. The other day, a client told me the Power Company was going to come by and prune his trees. He showed me a pamphlet that read, "All trees are pruned to the utility

guidelines, which are based on recommendations by the US Forest Service, and will not harm your trees in any way. This pruning method is endorsed by the International Society of Arboriculture and the Association of State Foresters." A300 was not listed in any way, yet all parties mentioned are either on the A300 committee or have been included in the review process.

Another typical request for a proposal came in the mail recently. It read, "The board of directors has requested that a bid be presented as soon as possible for the trimming of trees throughout the complex that need trimming due to problems, hazards, liabilities and aesthetics." There was no detail in this request. How do we bid this type of project? The only thing the client can compare is price. They have little idea of what they are going to get. The goal of common standards is to create a level playing field, because these types of requests are presented to us 90 percent of the time. With a bid request like this, we do not have a level playing field. A300 provides that level field.

A builder in our area once called me and said, "we need all the trees located in our parking lot and grounds trimmed."

I responded, "I would be glad to submit a proposal. Please send me the number of trees and your specifications." He didn't have any, so I tried to determine his goals by asking, "what would you like to accomplish with this pruning?"

He said, "you're the expert, you tell me." So I told him, "I know about trees, but I can't read your mind. Without knowing your goals, satisfying you would be a 'crap shoot' and stressful for both of us."

He stated that he thought I was being unreasonable and said, "none of the other tree companies asked for that information." I

stated that I prefer to start a business relationship on the same page. To make my point, I said, "By the way, I'm putting an addition on my house, a 26 foot x 40 foot garage, could you give me a bid?"

He said, "Sure, send over the drawings and plans."

I said, "I don't have any."

He said, "How are you going to have it built?"

I said, "You tell me, you're the expert." He said nothing and I never heard from him again.

The above examples take place in one form or



**How would you write a fertilizer specification for these trees?  
How would it compare to your competitor's specs?**

another across the country with all aspects of tree care—pruning, fertilizing, cabling, lightning protection, etc.

My goal for this article is to clear up some confusion on how to use A300 Standards. The committee has created standards that offer the consumer and trees a window of protection. A common notion I want to dispel is that A300 is not *the way* to perform tree care. A300 is a smorgasbord of choices to build specifications, not tell you what or how to do it.

Compliance is voluntary with A300, although the standard will be the benchmark used in tree care malpractice litigation. Compliance is key and most of us are complying, we just need to tweak things here and there to be in full compliance.

The first two parts of all A300 clauses will contain the scope, purpose and application of A300. The third part will be a clause-specific glossary. This glossary is a side goal of A300 is to establish terms used uniformly throughout the tree care profession. For example:

*“Drip line: a boundary on the soil surface delineated by the branch spread of a single plant, or groups of plants.”*

If we all adhere to the above definition, we all start on the same page.

The purpose of the fourth part is to provide standards for developing specifications. This is where the adopted in whole and parts becomes important. Specifying, “All fertilization shall be performed in compliance with A300 Standards” encompasses all the general language of the document that would be ridiculous to mention every time. For example:

11.2.2 All fertilizers shall be used in accordance with manufacturer’s recommendations—or

12.1.3 Slow-release fertilizers should be the preferred type.

The end of the statement, “*and to the following specifications*” provides for professionalism. This places accountability on both the arborist who writes the specifications and the technicians who perform the work.

To comply with A300 Fertilization Standards, the following standards shall be followed with every job order:

#### **11.2.1 Reason for fertilization**

The reason for fertilization is to supply nutrients determined to be deficient to achieve a *clearly defined objective*. That objective should be accomplished in the manner most beneficial to the plant.

11.2.4 *The types and rate of fertilizer; as well as, timing, method, and location of*

## **A300 Needs You!**

Have you ever lost a job to a less-than-honest local competitor because you use proper tree care practices and your competitor doesn’t? Do you have difficulty explaining that your tree care practices are far superior to those of your competitors? Is it difficult to explain that fact to your clients? Have you ever thought to yourself, “If there were only a level playing field, at least the client would be comparing *oranges to oranges* when deciding who to hire!” Well, ANSI A300 is the American National Standard designed just for that purpose! It has been created to give the standard language you need!

Make your experience in the tree care industry count. Comment on A300 standards and standard revisions whenever public comment periods are held. To find out when there is a public comment period and how to make comments, visit the NAA web site at [www.natlarb.com](http://www.natlarb.com).

Before commenting, it is a good idea to read Tim Johnson’s article and the following forward to the A300 Standard. Tim’s article and the forward do a good job of explaining what the A300 committee is and how the A300 Standards should be used.

## **Forward to ANSI A300**

*(This foreword is not part of American National Standard A300-1995.)*

An industry-consensus standard must have the input of the industry that it is intended to affect. The Accredited Standards Committee A300 was approved June 28, 1991. The committee includes representatives from the residential and commercial tree care industry, utility, municipal, and federal sectors, landscape and nursery industries, and other interested organizations. Representatives from varied geographic areas with broad knowledge and technical expertise contributed.

The A300 standard can be best placed in proper context if one reads its *Scope, Purpose, and Application*. This document presents performance standards for the care and maintenance of trees, shrubs, and other woody plants. It is intended as a guide in drafting maintenance specifications for federal, state, municipal, and private authorities; including property owners, property managers, and utilities.

The A300 standard stipulates that specifications for tree work should be written and administered by a professional possessing the technical competence to provide for, or supervise, the management of woody landscape plants. Users of this standard must first interpret its wording, then apply their knowledge of growth habits of certain plant species in a given environment. In this manner the user ultimately develops their own specifications for plant maintenance.

Any single part of A300, such as A300 (Part 2) - *Fertilization*, should be used in conjunction with the rest of the A300 standard when writing specifications for tree care operations.

Suggestions for improvement of this standard should be forwarded to: A300 Secretariat, c/o National Arborist Association, 3 Perimeter Rd. - Unit 1, Manchester, NH 03103.

This standard was processed and approved to submit to ANSI by Accredited Standards Committee on Tree, Shrub, and Other Woody Plant Maintenance Operations - *Standard Practices*, A300. Committee approval of the standard does not necessarily imply that all committee members voted for its approval.

application, shall be specified.

12.2.1 The fertilization area shall be defined prior to application. Consideration shall be given to root accessibility, root location, fertilization objectives, and plant species.

Knowing that each work order shall contain:

- ◆ Objective
- ◆ Type and rate of fertilizer to use
- ◆ Defined area to be fertilized
- ◆ Timing necessary to achieve objective
- ◆ Method of application

It is easier to see where other standards play into specification building. For example:

11.2.5 Secondary nutrients and micro-nutrients shall be applied at specified rates and timing to achieve fertilization objectives.

### 12.3 Surface application

12.3.1 Fertilizer shall be uniformly distributed within the defined area of fertilization.

12.4.1 Holes shall be evenly spaced within the defined fertilization area.

12.6.2 Foliar applications, injections, or implants shall only be used when soil application of fertilizer is impractical or ineffective in achieving fertilization objectives. Fertilizer specified shall be formulated for the application method.

I can hear some of you saying, "Whoa, this is going to take some work!" Yes, but not as much work as knowledge. Writing and following proper tree care specifications will definitely separate the professional from the nonprofessional. To write specifications, the arborist will need more than a basic knowledge of tree biology, anatomy, soils and chemistry, as well as experience with good tree care practices.

Let's look further at the required items in professional fertilizing specifications.

I. A Defined Objective—associated standards are:

#### 11.2.1 Reason for fertilization

The reason for fertilization is to supply nutrients determined to be deficient to achieve a clearly defined objective. That objective should be accomplished in the manner most beneficial to the plant.

11.2.6 Soil and/or foliar nutrient analysis should be used to determine the need for fertilizer.

And in the forward to A300, it states:

The A300 standard stipulates that specifications for tree work should be written and administered by a professional possessing the technical competence to provide for, or supervise, the management

of woody landscape plants. Users of the standard must first interpret its working, then apply their knowledge of growth habits of certain plant species in a given environment. In this manner, the user ultimately develops their own specifications for plant maintenance.

So,

12.1.2 In the absence of soil and/or foliar nutrient analysis, a fertilizer ratio of 3:1:1 or 3:1:2 should be used. For palms, the ratio should be 3:1:3. These ratios should be adjusted based on local knowledge, age and/or condition of the plant, soil and environmental conditions.

To clearly define an objective requires us to answer the question: what is our goal? All nutrients have a function. Why are we

fertilizing? Hopefully, we are not fertilizing because it is spring.

II. Type and Rate—associated standards are:

11.2.7 Soil pH shall be considered when selecting the fertilizer.

11.2.8 Fertilizer (salt) sensitive plants and new transplants should only be fertilized with a slow-release fertilizer.

11.2.11 Soil modification to improve nutrient uptake shall be considered prior to fertilization.

12.1.3 Slow-release fertilizers should be the preferred type.

12.1.4 Slow-release fertilizers should be applied at rates between 2 and 4 pounds of actual nitrogen per 1000 sq.ft. (0.8 to 1.7 kg N/100 m<sup>2</sup>) per application and shall not

## Sample work order

**ARTISTIC ARBORIST, INC.**

**JOB PROMISED** \_\_\_\_\_ Cross Streets: \_\_\_\_\_  
Map Page: \_\_\_\_\_ Index: \_\_\_\_\_

Job# \_\_\_\_\_ Bill To: \_\_\_\_\_  
 Job Name \_\_\_\_\_ Company Name: \_\_\_\_\_  
**JOB ADDRESS** \_\_\_\_\_ Attn: \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Address \_\_\_\_\_  
 Requested by: \_\_\_\_\_ Date: \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Phone No. \_\_\_\_\_ H \_\_\_\_\_ W \_\_\_\_\_ Phone No. \_\_\_\_\_ H \_\_\_\_\_ W \_\_\_\_\_

Item #	Qty	Work Description: Fertilization	Est. Hrs.	Pers. Assign
1	4	Citrus Objective: Reduce pH of soil, making minor elements available. Specifications: Create 2" diameter vertical ports, 12" on center and 8" to 18" deep. Area treated starts 24" out from trunk and extends 24" past drip line. Evenly broadcast 8 lbs. of soil sulfur over area. Mix excavated soil & sulfur together with rake while loosely filling vertical ports Leach area with 2" of water Complete the above by February 28, 1999 Check pH in April, 1999, for follow-up recommendations		
2	4	Citrus Objective: Overcome iron deficiency Specifications: Apply a liquid solution of EDDHA chelated iron, 1/2 lb. per 600 sq.ft., 4" to 8" below the soil surface. Application points shall be 18" on center starting 12" out from the trunk and extending to the drip line. The above to be completed in May, 1999. <b>The above fertilization shall be performed in compliance with A300 Fertilization Standards and the above specifications.</b>		
		Labor hours: _____	Travel Hours: _____	Total Estimated Hours for Work Order: _____

DEBRIS:  Haul  Firewood - length: \_\_\_\_\_ Billing Invoice Information:  Itemized  
 Additional Information: \_\_\_\_\_  Lump Sum  Time & Material - rate:

Extra Equipment, Tools, Materials Required: \_\_\_\_\_ Invoice # \_\_\_\_\_ Date: \_\_\_\_\_  
Date Paid: \_\_\_\_\_ Check # \_\_\_\_\_

Total Investment to complete the work described above: \$ \_\_\_\_\_  Open Account  COD

AUTHORIZED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

JOB COMPLETED \_\_\_\_\_ DATE \_\_\_\_\_ ACCEPTED FOR BILLING \_\_\_\_\_ DATE \_\_\_\_\_

JOB ACCEPTED \_\_\_\_\_ DATE \_\_\_\_\_  SEE REVERSE SIDE

Follow up: \_\_\_\_\_

exceed 6 pounds of actual nitrogen per 1000 sq.ft. (2.5 kg N/100 m<sup>2</sup>) annually.

12.1.5 Fertilizers with a salt index of less than 50 should be preferred.

The most critical factor here is dose. The young, newly installed tree would require a smaller dose than an established, maturing tree. The dose would drop again from maturity to over-mature stage.

III. Defined Area—associated standards are:

12.2.1 The fertilization area shall be defined prior to application. Consideration shall be given to root accessibility, root location, fertilization objectives, and plant species.

12.2.1.1 Damage to the buttress roots should be avoided.

12.2.2 For most trees and shrubs, the fertilization area should be from near the trunk to near or beyond the dripline. Inaccessible surfaces shall not be included in the rate calculation. Overlapping fertilization areas shall only be calculated once.

12.2.3 For fastigate trees and unusual situations, the method for determining the fertilization area is by multiplying the plant's diameter at breast height [DBH 4 1/2 feet (1.4m) above ground], measured in inches (cm), by 1 to 1 1/2 (0.12 to 0.18) to determine the radius, expressed in feet (m), from the trunk of the plant.

*For example, a 15-inch (38.1-cm) DBH tree would have a fertilization area radius of 15 to 23 feet (4.6 to 6.9 m).*

IV. Timing—associated standards are:

11.2.5 Secondary nutrients and micronutrients shall be applied at specified rates and timing to achieve fertilization objectives.

11.2.9 Plants with disease, insect infestations herbicide damage, or other conditions which could increase to damaging levels with fertilization should be fertilized only in conjunction with a treatment program.

11.2.10 Root pest management to improve nutrient uptake shall be considered prior to fertilization.

### 12.1.1 When to fertilize

Fertilizer should be applied so that nutrients are available when roots are growing.

V. Method—associated standards are:

### 12.3 Surface application

12.3.1 Fertilizer shall be uniformly distributed within the defined area of fertilization.

12.3.2 Where turf or ground cover exist, subsurface fertilization should be the preferred method of fertilization.

12.3.3 Surface application shall not be

made where surface runoff is likely to occur.

### 12.4 Sub-surface dry fertilization

12.4.1 Holes shall be evenly spaced within the defined fertilization area.

12.4.2 Hole depth, diameter, and spacing shall be specified. Holes should be 2 to 4 inches (5 to 10 cm) in diameter, spaced 12 to 36 inches (30 to 92 cm) apart, and 4 to 12 inches (10 to 30 cm) deep.

12.4.3 The fertilizer shall be evenly distributed among the holes.

12.4.4 Fertilizer should not be closer than 2 inches (5 cm) to the soil surface.

### 12.5 Sub-surface liquid fertilizer injection

12.5.1 Injection sites shall be evenly spaced within the fertilization area.

12.5.2 Injection site spacing and depth shall be specified. Injection sites should be 12 to 36 inches (30 to 92 cm) apart, and 4 to 12 inches (10 to 30 cm) deep.

12.6.2 Foliar applications, injections, or implants shall only be used when soil application of fertilizer is impractical or ineffective in achieving fertilization objectives. Fertilizer specified shall be formulated for the application method.

As you re-read the above standard, remember the definition of *should*—advisory and *shall*—mandatory.

Now that we have covered some of the major points, here is an example of how to use the standards:

Pecan trees—the goal is nut production, which automatically changes the purpose away from simply health maintenance. Health maintenance fertilizer requirements are different than nut production. The same would hold true for citrus trees.

Objective—reestablish required level of zinc. Pecan trees can be zinc deficient, become susceptible to diseases such as bunch disease (rosette), and start declining. In the spring, the plant is waking up, so you apply N-Z-N, a nitrogen zinc solution, that is formulated for foliar application at manufacturer's recommended rates. To meet the objective, we are going to apply the solution three times starting at bud break and every two weeks thereafter.

In our area, the southwest, it takes six weeks for those leaves to mature, so we are going to spray at the previously mentioned timing to make zinc available from bud break to maturity. We also cover foliage completely to runoff when spraying to help meet the objective.

Let's say for this same Pecan tree, the goal is health restoration with the same objective yet it is in the summer, weeks af-

ter the leaves have matured. Depending on our local knowledge and available root system, we could either apply zinc with a sub-surface application or an injection. The key word here is *available root system*.

Yet, to use A300 properly, it will take knowledge and time to visualize the results we achieve.

I interviewed a couple of people this year for a sales job. I asked the first person how he sold fertilizer. He told me you don't have to be a rocket scientist to sell fertilizer. He counts the trees and multiplies by \$25. I did not hire him.

The next person started into a big speech of how she sold the client. I told her I did not want to hear her spiel. I wanted to know how she formulated and calculated the quote. She said she multiplied the number of trees by \$30.

When I asked how she controlled what went into the ground, she answered she has no control. The person who does the work decides what to do. That is how crazy it is out there. Is this professional tree care?

When the clients that these two were dealing with see a proposal or work order containing an objective, type/rate, defined area, timing, and method listed, how can they waiver, if they are truly interested in caring for their trees.

Remember that A300 is not a 'how to'. A300 does not tell you how to prune or fertilize. However, as far as I am concerned, it is the best tool that we can use for pruning or fertilization, because we can pick and choose how fertilization is going to be done in a specific area for a specific tree based on our local knowledge. It does level the playing field, and will improve tree care practices. With A300, clients have a way to compare oranges to oranges when comparing prices. Arborists, by having to specify the parameters of their fertilization program, now must be able to defend the practices they employ.

*Tim Johnson is the chair of the A300 Committee, which is the body responsible for developing national consensus standards for tree care. He is the president of Artistic Arborist in Phoenix, Arizona.*

