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ISA

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exists for struck-by injuries from falling objects. The hazards of the drop zone and how to avoid them are discussed in several sections of the new Z.

Changes in the Tree Removal section of the Z, like the rigging section, are too extensive to summarize in this article. Highlights of these changes include:

- Addressing the differences between whole tree felling/manual tree felling and piecing down a tree for removal
- Use of the term "drop zone" to mean the intended fall area when piecing down tree parts – an exclusion zone for non-involved workers is an area with the radius of one tree height
- An expansive list of items or conditions to assess trees prior to felling, housed in Annex C.3
- Manual tree felling safety zone for non-involved workers is two times the height of the tree
- Addressing the hazard of barber chair
- Greater emphasis on escape path and getting the tree feller away from the falling tree
- Greater emphasis on the importance of the hinge, with a new definition in Annex A and a stipulation that there shall be an adequate hinge when using a notch and back cut

The Pesticide Application section of the new Z was expanded significantly, making it much more harmonious with most states' requirements for turf and ornamental pesticide application. The revision addresses applicator training; the use, maintenance, and storage of PPE; mixing pesticides; pesticide storage; and emergency action plans. Additional sections addressing air-excavation equipment and fertilization/soil management were incorporated.

This article is just a summary of the many changes in the new safety standard for arboricultural operations, and it certainly is no substitute for a physical copy of the entire standard.

There are several options for you to obtain your own copy of the new standard:

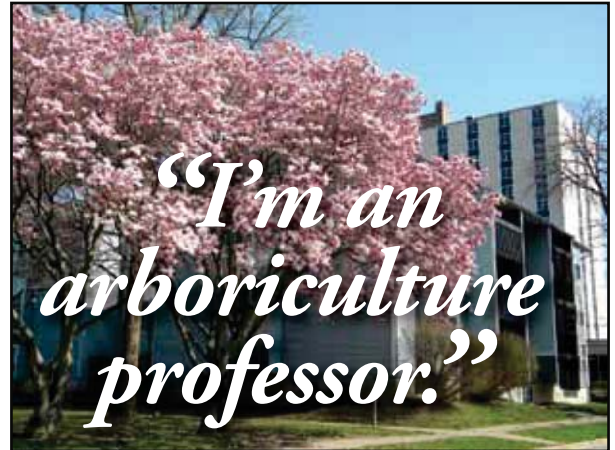
- The Z133 Standard may be ordered through ISA by phone (1-800-ISA-TREE) or by visiting the web (www.isa-arbor.com/store). Quantity discounts are available. Licensing agreements are available for organizations that need a large number of printed copies; contact Sharon Lilly (slilly@isa-arbor.com). A Spanish-language version will be available soon.
- If your company is a TCIA Active Member, just wait; TCIA will send each member one copy of the Z as a benefit of membership. The new Z may also be ordered from TCIA by phone (1-800-733-2622) or web (www.tcia.org) as well.



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Collegiate Arboriculture Education: Charting a Path into the Future

P. Eric Wiseman



Most of the time, when I make this statement at a gathering, I can safely assume that there is no one else in the room – perhaps the entire state – with this same occupation. Indeed, collegiate arboriculture educators are few and far between across the United States. So when I had the opportunity to participate in a collegiate arboriculture training program last June, I knew that it would be a unique opportunity to interact with like-minded faculty.

The training program, sponsored by ArborMaster and Husqvarna and held on the grounds of the Bartlett Tree Research Lab (Charlotte, NC), brought together twelve arboriculture educators from diverse institutions, ranging from community colleges to research universities. Despite differences in the scale and scope of our institutions, we were unified by one common motivation: improving our methods of educating and training the next generation of arboriculture professionals.

We began our week at Husqvarna's research and development facility learning about chain saw innovations intended to make arboriculture more safe, ergonomic, and productive. There we each received a generous donation of chain saw supplies and PPE from Husqvarna that were put to good use during our training on chain saw safety and tree felling on the second day. Under the tutelage of Ken Palmer and Rip Tompkins, we discussed best practices of operating and maintaining chain saws, observed techniques of directional felling using mechanical advantage, and did some "kinesthetic learning" (one of Ken's favorite terms – it means "hands-on") in making open-face notches and bore cuts with a chain saw.

The last two days of our training program focused on tree climbing. Understandably, these were the sessions that we, the "students," got the most excited about. There's something about tree climbing that engages all of the bodily senses and physical and mental capacities, more so than other aspects of arboriculture. Our discussions and training spanned the gamut from pre-climb inspection of tree and equipment to proper work positioning for operating a chain saw while aloft. We also discussed appropriate equipment and learning exercises for our respective collegiate arboriculture courses. It was interesting to hear about the diverse and creative teaching methods used by our colleagues. With the exception

of a few “walking wounded” in our cohort, everyone managed to get their feet off the ground with rope and saddle, and take a spin through the tree tops.

During the final day of our program, we shifted gears from learning arboriculture techniques to addressing an overarching issue not only for the educators, but also the industry. That is to say, the future of collegiate arboriculture education. We were joined that day by representatives from ISA, TCIA, PLANET, and several commercial and utility arboriculture firms. Also in attendance were nine educators who had completed the training program the previous year. Over the span of an afternoon and early evening, the group held an open forum on the issues, challenges, and opportunities that exist in collegiate arboriculture. At the conclusion of the forum, a five-member committee volunteered to synthesize the commentary and chart a path forward.

Bringing Things into Focus

Although the forum started with some free-flow commentary, the conversation quickly distilled down to two matters: student recruitment and baseline arboriculture competency. While it’s hard to generalize across institutions, it seems clear that we all have space for more students in our programs and that our programs feel vulnerable to institutional changes when we have empty seats in our classes. Indeed, this seems like an age-old challenge for arboriculture higher education and industry, but the issue may be approaching its zenith with increasing public discourse on higher education costs and the scrutiny of state legislators and college administrators who are looking to control these costs through programmatic realignments.

It seems that arboriculture has an image problem. Not that we poorly portray our profession, but rather our profession is profoundly misunderstood by society. To many people, arboriculture is viewed as a vocational dead-end where unskilled laborers end up rather than a profession that young people aspire to and purposefully prepare for through higher education. This misconception is compounded by modern society’s detachment from natural resources and general disregard for the knowledge and skills needed to properly manage those resources. Although there are numerous individuals and organizations that deserve our utmost appreciation for their promotion of the arboriculture profession, we must constantly reiterate both the viability of the profession and the necessity of arboriculture higher education for professional preparation. And it’s not just one audience; we must make convincing arguments to college administrators, career counselors, and parents. There is no panacea for student recruitment into arboriculture programs; recruitment must employ a diversity of tactics and involve cooperation amongst educators, industry, and professional organizations. Although we can’t expect a panacea, perhaps some strategies and best practices for student recruitment will emerge from the work of our committee in the coming year.

The second aspect of collegiate arboriculture education that emerged in the forum was baseline competency. This issue may be even tougher to reconcile than student recruitment given the diversity in scope of our respective institutions. Indeed, some of our collegiate programs offer degrees in arboriculture that entail multiple arboriculture courses, whereas other programs may be limited to a single arboriculture course within a broader degree program, such as forestry or horticulture. Moreover, some institutions are limited in their ability to provide intensive technical training due to cost, liability, or expertise. And even where these limitations can be overcome, there often simply isn’t any flexibility in a curriculum to reallocate credit hours due to general education and accreditation requirements imposed by our respective colleges. Despite

these differences, it seems tenable that a collegiate arboriculture baseline competency could be achieved across the United States. Indeed, based on the research of Wiseman et al. (2011), arboriculture courses (not curricula) in the United States already appear to be consistently teaching the appropriate subject matter. However, what we don’t know is the outcome of this education; that is, are the students who successfully complete these courses competent enough in arboriculture to be successful in an entry-level occupation? Perhaps a baseline competency checklist could help unify our diverse collegiate programs, facilitate our teaching and learning, and clarify expectations of employers for our graduates.

During the forum, it was suggested that the time may have come to consider a national standardized arboriculture curriculum and/or an accreditation program. There are many disciplines that have used these measures to help ensure competency of young professionals that emerge from collegiate programs. Perhaps the most closely allied accreditation to arboriculture is that of the Society of American Foresters (SAF). Since 1935, SAF has been accrediting undergraduate forestry programs in the United States. According to O’Hara and Redelheimer (2012), SAF accreditation reached an all-time high of 49 accredited and candidate programs around 1980. Although the number of accredited programs in 2010 stood at about 45, there has been an underlying shift in accredited program graduates from the historically large research universities to smaller non-doctorate-granting colleges.

In 2007, SAF instituted a specialized accreditation for collegiate urban forestry programs. Interest in the accreditation has been modest to date. Attempting to explain this lack of interest would be speculative, but personal observation at Virginia Tech (which was the first program accredited in 2008) suggests that the accreditation has had limited impact in terms of student recruitment and graduate employment. Simply put, students don’t seem to understand accreditation and employers don’t seem to value accreditation (yet). Unlike forestry accreditation, which is a mandate for employment consideration with U.S. Forest Service and many state forestry divisions, similar mandates do not exist for urban foresters outside these public sector employers.

This is a precautionary tale for any endeavor to create a collegiate arboriculture accreditation program. We must carefully investigate the benefits and costs of an accreditation program. Will it be valued by students and employers? Will it improve arboriculture education, which is ostensibly our fundamental goal? Who will develop the standards? Who will administer it? There may well be benefits of curriculum standardization and/or program accreditation, but we must provide due diligence to ensure that we understand the needs of our students, our institutions, and our industry. The committee that emerged from our forum will hopefully clarify these matters for us.

Higher education is vital to the future of the arboriculture profession and industry. We are fortunate that the industry and its professional organizations value collegiate arboriculture and graciously invest in programs to support faculty and to promote the arboriculture profession to students and college administrators. Together – faculty, industry, and professional organizations – can help ensure that arboriculture education maintains quality and relevance on our college campuses.

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