Stop #9: Updates on Evapotranspiration Adjustment Factor and Spanish Language Materials for Professional Landscapers Projects

Janet Hartin, CE Environmental Horticulture Advisor, San Bernardino and Los Angeles Counties

Evapotranspiration Adjustment Factor Project
(a contract received from California Department of Water Resources)

Principal Investigators: David Fujino (UC Davis), Janet Hartin (UC Cooperative Extension), & Loren Oki (UC Davis). Project Contractor: Bill Baker (William Baker & Associates)

California's population was 37 million in 2005 and is expected to reach 45 million by the year 2020. This projected increase, coupled with a severe multi-year drought and a statewide water distribution problem, necessitates further conservation of an already limited water supply. Landscape irrigation uses a significant amount of water. Residential water use totaled 5.9 million acre feet (MAF) in 2005. Of this, approximately, 54 percent (3.2 MAF) was used outdoors.

Increasing the use of practices leading to greater water use efficiency of large-acreage landscapes is consistent with goals of the CALFED Bay-Delta program to maximize existing water resources for assuring a steady and reliable water source for the future of California. While much progress has been made, a report issued by the California Urban Water Agencies entitled 'Water Conservation in Landscaping Act: A Statewide Implementation Review' indicated that maintenance was "the weakest link in the design, installation and maintenance scenario". The report recommended on-site auditing and greater education for contractors.

California Assembly Bill 1881 resulted in California enacting a law on January 1, 2010 reducing the Evapotranspiration Adjustment Factor (ETAF) from .8 to .7 in new landscapes over 2,500 square feet, mandating further water conserving measures in urban landscapes. Several 'best management practices' have been developed within UC ANR that can help the landscape industry maintain healthy landscapes and irrigate at or below the newly instated .7 ETAF, including: proper plant selection; proper irrigation system design and installation; hydrozoning; proper irrigation scheduling; mulching; and, regular maintenance of irrigation systems.

The goal of our California Department of Water Resources (DWR) project is to reduce water waste and increase adoption of .7ETAF by the landscape industry by setting up 30 large demonstrations sites at publically and commercially maintained landscape sites that exemplify research-based 'best management practices.' The sites represent a variety of ornamental plants with varying evapotranspiration rates growing under a wide array of plant densities and microclimates.

*Maximum Allowable Water Allowance (MAWA) = (ETo) (0.7) (LA) (0.62)
ETo = Reference Evapotranspiration (inches per year)
0.7 = ET Adjustment Factor
LA = Landscaped Area (square feet)
0.62 = Conversion factor (to gallons)
*Maximum Applied Water Allowance = _____ gallons/year

Example of Maximum Applied Water Allowance (MAWA): Riverside, California

Hypothetical Landscape Area = 50,000 sq ft
MAWA = (Eto) (0.7)* (LA) (0.62)**
MAWA = (51.1) (0.7) (50,000 sq ft) (0.62)
MAWA = 1,108,870 gallons per year
*ET Adjustment Factor ** Conversion factor from inches to gallons

We will be providing an extensive project update at the December 11, 2013 Turf and Landscape Institute at Etiwanda Gardens Conference Center in Rancho Cucamonga. Please register online at http://cesanbernardino.ucanr.edu/. (Click on 'environmental horticulture' on the left side of the website to access the registration form.)

Spanish Language Materials for Professional Landscapers Projects
(a contract received from CA Department of Pesticide Regulation)

Principal Investigator: Janet Hartin

Soil runoff and groundwater pollution are leading sources of water quality degradation in urban areas of Southern California and are largely due to overuse and improper use of pesticides and fertilizers. Approximately 75,000 Spanish-speaking landscapers and gardeners make decisions and/or apply pesticides and fertilizers annually in Southern California. Many lack adequate expertise in Integrated Pest Management (IPM) and safe use of pesticides in part due to inadequate training opportunities available in Spanish. Increasing educational services stressing pest prevention to this large clientele – which has quadrupled over 20 years - can significantly reduce overuse and misuse of pesticides in urban environments and improve the health and safety of the work environment for this segment of the profession.

A group of UC and external industry partners is developing and providing educational services to Spanish-speaking landscapers at 13 workshops that include hands-on as well as classroom training. Specific curriculum and activities used in the training is based on the results of focus groups and individual interviews that assessed the specific needs of this large clientele.

Subject matter for the workshops includes peer-reviewed materials from UC and other sources.

Specific practices taught will include:

- Proper plant selection (based on climate and microclimate conditions)

- Proper planting techniques (planting depth, planting density to prevent poor air circulation , etc.)

- Proper irrigation system design and installation

- Use of recommended maintenance practices to prevent pest outbreaks such as

    - irrigation scheduling based on plant water needs (as estimated by plant symptoms/health; weather-based measurements measured by CIMIS (temperature, solar radiation, relative humidity, and wind speed)

- fertilization (correct rate, method, timing)

- recommended pruning practices

- other (turf mowing, aeration, verticutting)

- Regular monitoring for pest outbreaks/Early pest detection and identification

- Use of chemical pesticides as a last resort in a safe and effective manner (this module will include laws and regulations regarding safe pesticide handling and use)

The project includes strong evaluation elements that will measure its impact. Specific tools include measuring change in subject matter expertise 'pre' and 'post' training and an assessment of pesticide use three months post-training which will be compared to benchmark data established before training occurred. The project builds on and greatly expand work previously completed on a DPR Alliance grant to provide enhanced educational services to Spanish-speaking residential gardeners in San Luis Obispo County and is oriented more to public and private landscape clientele rather than residential gardeners.

Please email Principal Investigator Janet Hartin (jshartin@ucanr.edu) if you are interested in attending or sending Spanish-speaking employees to an upcoming landscape workshop taught in Spanish or if you are interested in receiving hands-on and classroom training in Spanish at your own facility in Winter or Spring 2013/'14. The first training opportunity is December 11, 2013 at the Turf and Landscape Institute at Etiwanda Gardens Conference Center in Rancho Cucamonga. Please register online at http://cesanbernardino.ucanr.edu/. (Click on 'environmental horticulture' on the left side of the website to access the registration form.)