

Turfgrass and Landscape Pest Management in Hawai'i

The Situation

Turfgrass area has become a central part of urban and suburban landscapes throughout the USA. In Hawai'i, the golf industry (\$1.4 billion in 2007) and landscape industry make significant contributions to Hawaii's recreation and tourism-driven economy.

There are unique challenges for turfgrass and landscape pest management in Hawai'i. First, the year-round growing conditions are not only good for plants but also good for a diverse range of turfgrass and landscape pests, such as insects, fungi, weeds, and nematodes.

Second, despite federal and state quarantine regulations, over 20 new pest species became established in Hawai'i every year in recent years, including some severe turf and landscape pests such as the coconut rhinoceros beetle and the lobate lac scale. These unique turf and landscape pest management challenges in Hawai'i call for effective and environmentally friendly control strategies based on applied research.

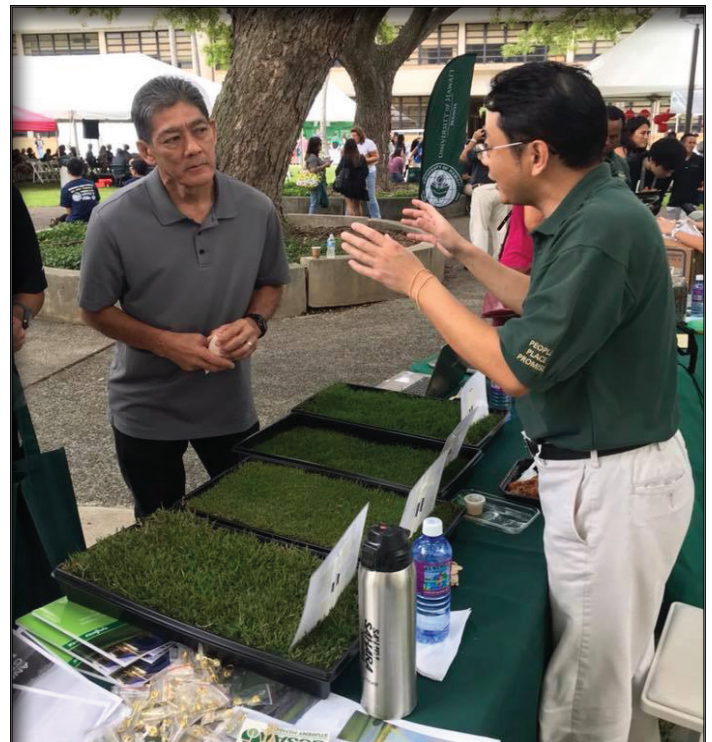
Cooperative Extension's Response

In 2013, Assistant Extension Specialist, Dr. Zhiqiang Cheng started CTAHR's Turfgrass and Landscape Pest



Extension seminar at Landscape Industry Council of Hawai'i conference

Management Program. This program provides Extension education and effective pest management options to stakeholders in Hawai'i and on a broader sense, to turfgrass and landscape industries in tropical regions of the world. One of the key components of this program is to conduct applied research on pest management for turfgrass and landscape plants in Hawai'i.



Manoa Experience outreach event

Research efforts focus on: 1) Integrated Pest Management (IPM) for lawns, golf courses, athletic fields, and urban landscapes; 2) understanding ecological interactions among turfgrass/landscape plants, pests, soil, and other environmental factors; and 3) testing/selecting effective yet environmentally friendly pesticides and biological control agents against turf and landscape pests in Hawai'i.

Dr. Cheng maintains the UH Turfgrass Management Program website so stakeholders can access the latest information and research data generated by this program.

Turfgrass and Landscape Pests - continued

Impact/Outcomes

Through meetings with stakeholders, extension talks/seminars, organizing workshops, and applied research trials, this program has made solid impacts in the field of turfgrass and landscape pest management to a diverse range of stakeholders in Hawai'i and beyond.



**Trunk injection treatment
on a banyan tree**

Specifically, this program has helped green professionals statewide understand more about important turf and landscape pests in Hawai'i and has provided with them viable control options. Some examples include:

- The National Memorial Cemetery of the Pacific (aka Punchbowl Cemetery) and ArborJet treated over 50 Chinese banyans against Ficus stem and leaf gall wasps based on Dr. Cheng's research recommendation.
 - Some landscape companies, UH Mānoa Landscape Services, UH East-West Center, and some golf courses treated hundreds of banyans to protect them from Ficus stem and leaf gall wasps and lobate lac scale using the methods that Dr. Cheng identified and recommended.
- Some golf courses are adopting fungicide programs that Dr. Cheng identified for turfgrass fungal disease take-all patch control.
 - Coconut rhinoceros beetle (CRB) eradication program, the largest invasive species eradication program in Hawai'i's history, is treating coconut palms against CRB on a large landscape scale, based on Dr. Cheng's research.



CTAHR Day outreach event

For more information, please contact:

Dr. Zhiqiang Cheng, Associate Extension Specialist
 (808) 956-6416, cheng241@hawaii.edu
<http://cms.ctahr.hawaii.edu/cheng>
<http://turfgrass.ctahr.hawaii.edu>

Key collaborators in CTAHR's Department of Plant and Environmental Protection Sciences and Department of Tropical Plant and Soil Sciences

Dr. Michael Melzer, Associate Researcher
 Dr. Arnold Hara, Researcher Emeritus, retired
 Dr. Joseph DeFrank, Extension Specialist