2013 Program Report Card: Plants and the Environment (The Connecticut Agricultural Experiment Station)

Quality of Life Result: All Connecticut forests and beneficial, non-invasive plants are thriving, supporting a healthy environment for all residents.

Contribution to Result: Insect and plant disease diagnostic and inspection services provide surveillance for new pests and integrated pest management (IPM) research to protect crops and forests from invasive insects and plant diseases. We detect emerging insects and plant diseases, facilitate trade, support jobs in the green industry, develop new management approaches, and provide information about plant health problems to state residents and the scientific community through publications and talks.

Actual SF12 Total Program Expenditures: 1,185,608 *State Funding*: $698,612 *Federal Funding*: $473,408 *Other Funding:* $13,588

Estimated SF13 Total Program Expenditures: $1,215,000 *State Funding*: $700,000 *Federal Funding*: $500,000 *Other Funding:* $15,000

Partners: CT Dept. of Agriculture, CT DEEP, UConn Extension (Storrs), CT Green Industry Coalition, USDA, US Forest Service, homeowners and lake associations, The Nature Conservancy, CT Tree Protective Association, Federated Garden Clubs, CT Forest & Park Association, Audubon Society, CT beekeepers.

Performance Measure 1: Safeguard agriculture and forests in CT.

Number of phytosanitary certificates and plants or containers inspected and shipped out of state or country.

Year	# Certificates	# Inspected
2009-2010	354	285,296
2010-2011	347	248,443
2011-2012	346	247,708

Story behind the baseline: Greenhouse and nursery production is the largest sector of agriculture in CT with $457 million in output and 4,782 direct jobs for the state's economy in 2010. Forest products contributed another $1.14 billion and 3,500 jobs. Regulatory plant inspections protect jobs, support our industry and forests, and facilitate trade. Federal and state laws require that plants sold in or shipped from CT be free of insect pests and plant diseases. In 2012 (calendar), there were 586 certificates issued. Our inspectors survey for invasive pests and diseases, such as the Asian longhorned beetle (ALB), emerald ash borer (EAB), and Ramorum oak blight. Boxwood Blight, a new disease to the US, was detected in CT in 2011 and our inspections for clean plants permitted our nurseries to continue to ship product. The EAB was detected in CT in 2012 and a state and federal quarantine was established for New Haven County to slow the spread and impact of this destructive insect on our forests and towns.

Trend: ◄► Flat/No trend

Performance Measure 2: Reduce pesticides applied to plants, improve yields with better quality products for consumers, and promote environmental stewardship with accurate diagnosis.

Number of responses to plant-related inquiries and insect and plant disease diagnostic tests conducted.

Year	# Responses to Plant Inquiries	# Diagnostic Tests
2009-2010	16,192	10,326
2010-2011	15,720	6,227
2011-2012	18,700	6,365

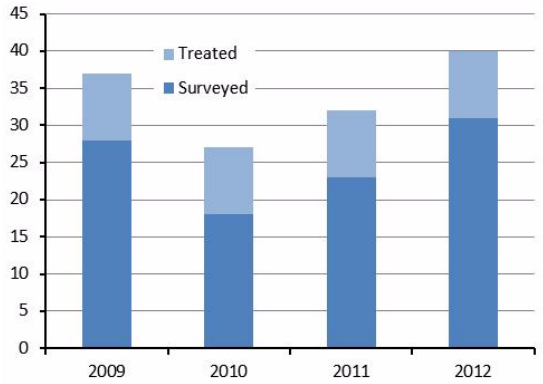
Story behind the baseline: Diagnoses of insect and plant disease problems were performed for state residents. Suggestions for control were given to the stakeholders, along with written information on each pest or disease. A wide range of different insect and plant disease problems are identified. In about 50% of inquiries, stakeholders visited our laboratories to seek direct assistance. Our plant diagnostic office provided the first identification of boxwood blight from samples from an arborist and CAES subsequently developed nationally recognized best management practices and received funding to research this new disease. The *Plant Pest Handbook* on our website received 2,187 page views, while our publications page received 5,380 views.

Trend: ◄► Flat/No trend

Performance Measure 3: Reduce invasive aquatic plants with less cost and negative impact to the environment.

Story behind the baseline: Invasive aquatic plants degrade water quality, limit recreation, reduce property values and adversely affect natural ecosystems. Between 2004 and 2012, 221 lakes have been surveyed and 61% were found to contained one or more invasive plants. Nearly a quarter of the lakes are actively managing the problem using our surveys and technical assistance. Our experiments in several lakes are searching for improved control options that limit adverse effects on the environment. Our website www.ct.gov/caes/iapp offers the most complete set of lake maps and associated information of any state.

Annual number of lakes surveyed and those receiving treatment.



Trend: ▲ Yes

2012 Program Report Card: Plants and the Environment (The Connecticut Agricultural Experiment Station)

Quality of Life Result: All Connecticut forests and beneficial, non-invasive plants are thriving, supporting a healthy environment for all residents.

Performance Measure 4: Number of soil tests performed to help to improve soil quality and minimize the use of fertilizers on lawns and nursery stock.

Number of soil tests performed.

Year	# Soil Tests
2008-2009	11,699
2009-2010	9,971
2010-2011	10,190
2011-2012	10,657

Story behind the baseline: Fertilizers are used extensively by homeowners, landscapers, golf course managers, and farmers. In many cases, these chemicals are applied without knowledge of soil quality. This practice can lead to polluted surface and groundwater, thereby encouraging rapid growth of algae and invasive aquatic plants. People who own or rent lake-front properties have expressed concern over reduced water quality. A benefit of testing soil samples is less fertilizer leaching into surface and groundwater and Long Island Sound. Legislation taking effect January 1, 2013 will require that a soil test be performed showing a need for phosphorus before fertilizer containing phosphorus can be purchased for established lawns. It is unknown what impact this will have on soil testing requests. In related work, field studies have been designed to determine minimal amounts of fertilizers needed for proper Christmas tree growth in farms. The long-term benefit is a cleaner environment and lower costs of farming.

Trend: ◄► Flat/No trend

Performance Measure 5: Dissemination of new scientific findings to the public and other scientists.

Number of homeowners and scientists gaining knowledge of plants and the environment through talks and media interviews, research papers, and direct contact.

Year	# talks	# papers	# contacts
2008-2009	834	88	46,286
2009-2010	755	90	41,017
2010-2011	749	86	48,407
2011-2012	773	95	47,998

Story behind the baseline: Public service and access to our findings are an important component for all performance measures. CAES scientists partner with stakeholders and participate in their organizations as members or officers, conduct workshops or meetings and perform experiments on stakeholders' properties as well as on CAES research farms, provide diagnostic services and training on good farming practices and other methodologies, and disseminate written information on research findings by presenting scientific displays at agricultural fairs and giving talks and interviews to civic groups. Staff members work with the media and provide information on scientific discoveries, and educate teachers and, thereby, indirectly reach youth. Scientific findings are published in peer-reviewed journals. Two open houses were held each year on CAES properties to allow the public to hear oral presentations on research results and to offer comments. Increasingly, information and all our publications are readily available on the CAES website.

Trend: ◄► Flat/No trend

Proposed actions to turn the curve:

Research, outreach, and regulatory activities have been initiated or expanded to protect trees and nursery crops. For example, CAES applied for and received funding to continue the multistate Forest Pest Survey and Outreach Project to increase public awareness about ALB and EAB. Competitive funding was obtained to study boxwood blight and evaluate cultivars for resistance and other control methods to protect nursery and landscape plants. New firewood regulations were established and DEEP personnel were trained as part of a cooperative agreement with DEEP to work together and share resources to deal with EAB surveys and quarantine. CAES is examining biocontrol for EAB.

The presence and characteristics of invasive aquatic plants will continue to be documented to help improve control strategies and reduce chemical use. For example, studies using predatory beetles for biological control continue to be evaluated; another 9,000 beetles were released to control Eurasian water milfoil in Candlewood Lake in 2011. State law bans the sale and transport of 20 invasive aquatic plants. Some are very hard to identify and can be mislabeled. CAES found that a few aquarium stores were inadvertently selling banned plants and provided material on the plants, the state law, and education seminars to aquarium retailers. The information was valuable to CT Dept. of Agriculture and CT Department of Energy and Environmental Protection, which inspect aquarium retailers and enforce laws.

Data Development Agenda: The USDA requires a five year Plan of Work and the collection of data to document the impact of research in annual reports. Detailed summaries of our outreach and research are compiled annually in our Record of the Year. These are all available on the CAES website. The Station will continue to collect data to measure impact on how much we did, how well we did it, and how better off CT stakeholders are through our research and outreach efforts.