2011

# National Elm Trial for Iowa

Mark L. Gleason
*Iowa State University*, mgleason@iastate.edu

Jean C. Batzer
*Iowa State University*, jbatzer@iastate.edu

# National Elm Trial for Iowa

**Abstract**
Although many Dutch elm disease-resistant elm cultivars are available in the nursery trade, much of the public is hesitant to purchase and plant any elm tree. In order to promote interest in planting these trees, scientific data on growth, form, and pest resistance for existing Dutch elm disease resistant elm cultivars are essential.

**Keywords**
RFR A1027, Plant Pathology and Microbiology

**Disciplines**
Agricultural Science | Agriculture | Plant Pathology

# National Elm Trial for Iowa

**RFR-A1027**

Mark Gleason, professor
Jean Batzer, assistant scientist
Department of Plant Pathology

## Introduction

Although many Dutch elm disease-resistant elm cultivars are available in the nursery trade, much of the public is hesitant to purchase and plant any elm tree. In order to promote interest in planting these trees, scientific data on growth, form, and pest resistance for existing Dutch elm disease resistant elm cultivars are essential.

The National Elm Trial is a multi-state effort to evaluate and promote the use of commercially available Dutch elm disease resistant American and hybrid elms. Seventeen elm cultivars are being planted in large replicated trials in a wide range of conditions across the United States so that their growth and performance can be evaluated. Public and private sites in 15 states are cooperating to evaluate these tree cultivars over a wide range of growing conditions and hardiness zones. The project is coordinated by Dr. William Jacobi and Dr. James Klett of Colorado State University and Dr. James Walla of North Dakota State University. Iowa State University is among the fifteen state cooperators

The objective of this research was to:
1) determine the growth and horticultural performance of commercially available Dutch elm disease resistant elm cultivars in various climate regimes in the United States;
2) determine the relative disease, insect, and abiotic stress tolerance of these cultivars; and
3) promote the propagation and use of elms through local, regional, and national reporting of the trial results to wholesale tree propagators and growers, retail nursery and garden center operators, landscaper designers, arborists, and the general public.

## Materials and Methods

In 2005, elm cultivars 1–14 were planted in April. Varieties 15–16 were planted in May 2006 and variety 17 (Prairie Expedition) was planted May 2007. Each cultivar is represented by one tree in each of five blocks in a randomized complete block (Figure 1). The elm cultivars represent a range of hybrids and species of *Ulmus* that are commercially available. The trial will be conducted over a period of ten years.

Annual assessments of each tree were made from July to October and include: height, diameter, and crown characteristics. In addition, the presence of vascular diseases, canker diseases, foliar diseases, scale insect infestations, foliar-feeding insect infestations, bark beetle infestations, and abiotic damages (frost/freeze, wind, winter dieback, sunscald, and insufficient soil moisture) will be noted.

Strong winter and summer storms with high winds accompanied by wet soil conditions resulted in the loss of seven trees in the experiment. Two trees were also lost as a result of sunscald on the southeastern portion of the trunk.

## Acknowledgements

We would like to thank Nick Howell and Lynn Schroeder for helping with orchard maintenance. Thanks also to the 312 Bessey field crew for all of their hard work during 2009.

**Figure 1. Plot map of National Elm trial at ISU Horticultural Research Station. Numbers indicate replicate-variety. Those with darkened boxes blew over or died in 2010.**

| Column/ Row | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 1 | | | **2-11*** | 2-10 | 3-2 | 3-12 | 5-15 | 5-4 |
| 2 | | | 2-7 | 2-12 | 3-15 | **3-17** | 5-13 | 5-9 |
| 3 | | | 2-15 | 2-6 | **3-11** | 3-9 | 5-10 | 5-12 |
| 4 | | | **2-5** | | **3-1** | **4-1** | 5-7 | **5-1** |
| 5 | | 1-6 | 2-17 | 2-13 | 3-8 | 5-17 | **4-4*** | 5-16 |
| 6 | | | 1-8 | **2-14**** | | 4-16 | | **5-14**** |
| 7 | 1-17 | 1-15 | 1-16 | 2-2 | **3-14*** | 4-10 | | **5-17***** |
| 8 | 1-10 | 1-13 | | 2-9 | 3-6 | 4-8 | 4-12 | |
| 9 | | **1-2** | | | 3-4 | 4-5 | 4-2 | 5-5 |
| 10 | | 1-7 | **1-1*** | **2-16**** | 3-13 | 4-7 | **4-11**** | **5-11*** |
| 11 | | **1-14** | 1-4 | **2-1**** | 3-16 | 4-9 | 4-15 | 5-2 |
| 12 | **1-11***** | | 1-9 | 2-8 | 3-7 | 4-13 | **4-17** | 5-6 |
| 13 | 1-12 | | 1-5 | 2-4 | **3-10*** | **4-14**** | **4-6*** | 5-8 |

*died in 2007; **blew over in 2008; *** dead in 2009.


ROAD