THE SCIENCE BEHIND EARTH-KIND ROSES

by Deborah B. Frost
Extension Horticulture Agent
Texas AgriLife Extension Service
Dbenge@ag.tamu.edu

WHAT IS EARTH-KIND?

Earth-Kind is an environmental landscape management system that has been created by horticulture specialist, agents, volunteers and industry representatives of the Texas AgriLife Extension Service. It is the fastest-growing university program of its kind in the nation. To protect the educational focus, use, and integrity of the term and program it is federally registered as a trademark of the Texas AgriLife Extension Service, The Texas A&M University System.

Specifically Earth-Kind is a landscape program that uses research-proven, time-honored techniques to provide maximum garden and landscape beauty and enjoyment while preserving and protecting the environment. Earth-Kind combines the best principles of organics and traditional gardening and landscaping to create a horticultural system based on real-world effectiveness and environmental responsibility. Earth-Kind encourages:

- Landscape water conservation
- Landscape for energy conservation
- Reduction of fertilizer and pesticide use
- Reduction of yard wastes entering landfill

Individuals anywhere in the world can use Earth-Kind landscaping principles to create beautiful, easy-care landscapes, as well as vegetable and fruit gardens, while conserving and protecting natural resources and the environment. Earth-Kind landscaping incorporates seven basic practices:

- Planning and design
- Practical turf areas
- Appropriate plant selection
- Soil improvement
- Efficient irrigation and rainwater catchment
- Effective use of mulches
- Appropriate maintenance

Seven other universities are joining in and making an investment to conduct Earth-Kind research in their own states. They include; Louisiana, Colorado, Nebraska, Iowa, Kansas, Arkansas, and Minnesota. Twenty-five states, four countries, and most Texas counties are involved in Earth-Kind. Twenty-six city parks have converted to Earth-Kind practices.

EARTH-KIND ROSES

Earth-Kind roses are appropriate landscape plants, the third principle of Earth-Kind. No other group of plants have been tested as extensively as roses, but flowering perennials, herbs, shrubs and some fruits and vegetables could be. Roses are a logical first choice because of their exciting popularity, gorgeous flowers, tremendous landscape displays and perhaps their nostalgia-evoking qualities.

Earth-Kind roses have been extensively tested in research and field trials, home gardens, city park demonstrations but it officially began in Dallas, Texas at the Texas A&M Research and Extension Center. Phase I of field trial data took place at the Dallas center on 114 cultivars for four years. Phase II involved the testing of the best twenty-two of these roses in various locations throughout the state of Texas in a variety of field trials, demonstration gardens, city parks, and home gardens. The rose cultivars that performed consistently well have become "Earth-Kind" roses after an additional 3-4 years of testing in Texas.

The Standard for Earth-Kind roses are:

- Fully tested
- Beautiful landscape roses
- Roses that don't need pruning or deadheading
- Roses that don't need to be fertilized
- Roses that don't need pesticides
- Roses that don't need wasteful amounts of landscape water

These are the current Earth-Kind roses in Texas. They are:

`Belinda's Dream'	`Marie Daly'
`Caldwell Pink'	`Mme. Antoine Mari'
`Carefree Beauty'	`Mutabilis'
`Climbing Pinkie'	`New Dawn'
`Ducher'	`Perle d' Or'
`Duchesse de Brabant'	`Sea Foam'
`Else Poulsen'	`Souvenir de St. Anne's'
`Georgetown Tea'	`Spice'
`Knockout'	`The Fairy'
`La Marne'	

HOW TO GROW EARTH-KIND ROSES

Whether it is a formal research trial or a home garden rose bed, these are the general guidelines for growing Earth-Kind roses.

- Grow in full, all day sun
- Plant where roses have adequate space to grow

- Plant where there is good air movement to pass over leaves
- Amend the soil with 4-6 inches of plant based, fully finished compost
- Always maintain a 4 inch layer of organic mulch (local shredded, leafy tree limbs is recommended).

Greater detail on growing Earth-Kind roses can be found at: http://earthkindroses.tamu.edu/EKRoseTips.html. This publication gives specifics on how to handle heavy clay soils, saline irrigation water, and fertilizer recommendations should they be needed.

NATIONAL EARTH-KIND ROSE RESEARCH TRIAL

There is now a push to find a national Earth-Kind rose (s). Several universities, other Extension Services, city parks departments, Master Gardeners and home gardeners are actively testing for these roses.

Texas AgriLife Extension Service in Ector and Midland counties and Permian Basin Master Gardeners initiated a test site in 2006. The project partner that provided the testing location, water and irrigation assistance is the University of Texas of the Permian Basin - Center for Energy and Economic Diversification. Extension has provided the technical guidance and Permian Basin Master Gardeners have provided outstanding leadership overseeing the project, providing labor and maintenance for the trial. Extension agent and Master Gardeners work together to monitor and evaluate the trial. Dr. Steve George, Extension Horticulture Specialist with Texas AgriLife Extension Service and state-wide coordinator of Earth-Kind provides technical advise and guidance for the project.

This National Earth-Kind trial consists of thirty different rose cultivars planted in three randomized complete block design. Many of the roses are Texas Earth-Kind roses but almost two thirds are Buck roses bred by Dr. Griffin Buck, Professor of Horticulture, Iowa State University. Dr. Buck's breeding program focused on roses that would tolerate extreme cold, heat, drought, disease pressure and the other rose challenges. This trial consists of these cultivars:

`Amiga Mia'	`Earth Song'	`Prairie Harvest'
`April Moon'	`Flora Dora'	`Prairie Princess'
`Barn Dance'	`Folksinger'	`Princess Verona'
`Belinda's Dream'	`Knockout'	`Quietness'
`Blushing Knock Out'	`New Dawn'	`Sea Foam'
`Carefree Beauty'	`Pearlie Mae'	`Seminole Wind'
`Carefree Wonder'	`Penelope'	`Square Dancer'
`Chuckles'	`Pink Knockout'	`Summer Wind'
`Country Dancer'	`Polonaise'	`The Fairy'
`Dublin Bay'	`Prairie Breeze'	`Winter Sunset'

The Earth-Kind Rose Research site was prepared by Extension, Permian Basin Master Gardener, and local partners. Some assistance was given by donating irrigation supplies, trucking

equipment, man power and money to finance the project. Soil samples from the site were taken before any work began and repeated in 2009. These are available upon request.

The steps of the site preparation included:

- A site map with three randomized complete block design.
- Roses were planted on an 8' spacing in the row and 12' between rows.
- Bermuda grass was eliminated with glyphosate herbicide three times in August 2006.
- Compost was transported from a city municipal compost operation in Big Spring, TX.
- Six inches of compost was tilled into the top 6" of soil with a tractor/tiller on 9/16/06 .
- Amended rose rows were six feet wide.
- Each row had 2 drip irrigation lines, 12 inches apart, on either side of the rose rows.
- Built in emitters were located every 12 inches and they emit .9 gallons/hour.
- The beds were covered with 4" of shredded tree limbs.

Steps for planting:

- One-gallon, own-root roses were planted on 10/19/06.
- Each planting site was numbered 1-30 and marked with a stake.
- One rose name was randomly drawn from a hat for each plant site.
- The corresponding rose was placed at each numbered stake.
- The mulch was pulled away from the planting site.
- Each rose was planted using correct horticultural planting methods.
- Roses were watered in immediately after planting.
- Enclosed wire cages to protect each rose from pack rat damage.

The roses were hand watered for the first two weeks to ensure a moist root ball. Unusual rainfall kept the fall, winter and spring soil moist, so not much irrigation water was needed to get the roses established. The cages were removed in May once the plants were large enough to not be damaged by the pack rats.

TRIAL EVALUATION

The trials are evaluated once a month from April to November.

Criteria for evaluation included:

- Overall visual rating 1-10 with 10 being the best
- Percent bloom 1-100% coverage
- Number of blooms
- Insect rating 1-10 with 10 being insect-free
- Disease rating 1-10 with 10 being disease-free
- Height and width measurements were always taken
- Notes are made for types of pests, symptoms, and other visual observations.

Data has been collected in 2007, 2008 and is being collected in 2009. It is currently posted on westtexasgardening.org. or it is available upon request. This research project will conclude in

November 2009 at which time the data will be evaluated for overall results. This test will not only contribute to the search for the National Earth-Kind rose, but it will be valuable information to Southwestern regions with low rainfall and saline irrigation water.

EDUCATIONAL USE OF TRIAL SITE

The National Earth-Kind Rose Research trial site is used for educational purposes as well as evaluation. The National Earth-Kind Advanced Training was held three years at the CEED, so ninety students benefitted from seeing an actual trial using Earth-Kind principles as part of their training. Master Gardener Trainees are trained in the garden each year. Tours and workshops for the general public are also conducted by the Extension Service and Permian Basin Master Gardeners.

A map and signage are located at the garden explaining Earth-Kind and this research project for individuals who visit. Each rose is marked with a brick at its base with its name on it. This garden is also features on our Permian Basin Master Gardener Website with the map and pictures and details about each rose.

EARTH-KIND FOR YOU

Earth-Kind principles and practices are applicable world wide. We would like to encourage you to be an Earth-Kind ambassador in your country by going back and searching out the oldest, strongest and most beautiful roses for testing the Earth-Kind way. Appropriate, consistent and time proven testing will reveal the very best roses that will yield beauty and performance without harsh chemicals, fertilizers, excessive water, pruning and deadheading. All test sites should have full sun, good air circulation, one-time soil amendments of 4-6 inches of fully finished compost, and an on-going maintenance of 4 inches of mulch from a local sources of shredded tree limbs (preferably with leaves). No fertilizer or pesticides should be used in these trials and a gradula 70% decrease in irrigation water should be practiced to see how the roses will perform over an extended period of years.

Please join us by growing roses in your own garden the Earth-Kind way. Test for yourself and see what happens with these simple yet effective methods. There are several levels of participation:

- Grow one or a few roses in your own garden
- Develop display beds at a city park, church or school
- Randomized, replicated field trials (approximate cost is about $1200)

We hope to meet with you again in ten years to reconvene in a conference where everybody brings ten rooted cuttings of their very best roses for exchange and testing in other countries. This could lead to a world class collection of Earth-Kind roses.

Earth-Kind working with homeowners, businesses, and communities can help create a healthy, beautiful and sustainable environment for the future.