

EARTH-KIND® ROSES TAKE ROOT IN COLORADO

by Gaye Hammond, Houston Rose Society & National Earth-Kind® Advisory Board
8627 Deep Valley, Houston, Texas, 77044 gayeh@LPM-triallaw.com &
Tamla Blunt, Diagnostician, Plant Identification & Disease Clinic, Colorado State University

The Earth-Kind® Rose Program is probably the most significant development in rose horticulture since the creation of the modern rose!

Six years ago when Dr. Steve George told me that there were roses that would grow and thrive on almost no human care I said one of two things had happened. He had either lost his mind or he didn't know much about growing roses. I have come to regret those words.

The Rose's reputation for being temperamental, hard to grow and chemically dependant is legendary. In some respects this reputation is the by-product of man's desire to create the perfect bloom - sacrificing the plant's genetic propensity for fragrance, disease and insect resistance in favor of bigger blooms, bolder colors and longer stems. Today, the home gardener must adapt their maintenance program to compensate for the absence of genetic qualities that make roses care free. This equates to implementing regular spray regimes to combat fungal and insect problems and the addition of copious amounts of fertilizers to maintain high yields.

In reality the typical home gardener (non-rosarian) waters their roses when the plant wilts, applies chemical treatments when the bush has no leaves, does little or no amending of the soil and becomes frustrated when the roses do not meet their expectations. A high-maintenance approach to rose horticulture is not only disappointing for the home gardener, it is what usually steers them to growing something other than roses. Even though it seems that everyone "wants" to grow roses, a large population of home gardeners have such a strong perception that they are doomed to fail if they try to grow roses - they simply refuse to try. This perception is one that members of local rose societies constantly battle in our attempts to secure new members while encouraging rose horticulture within our communities.

In addition to maintenance requirements, climate extremes (drought, heat, blistering winters) and less

than optimum soil conditions (poor drainage, high alkalinity, high porosity) combine to make successful rose growing a challenge and stressful to the plants. Without question stressed plants have an increased susceptibility to insect and disease pressures. Further, today's gardeners also face (a) municipalities limiting irrigation during periods when plants are already stressed, (b) increasing salt levels in many areas due to a reduction in available ground water supplies and (c) escalating costs for fertilizers and rose care products (Harp et al 2008).

The public's demand for low maintenance "environmentally friendly" roses is growing at an explosive pace as more gardeners become less willing to expose themselves and their families to pesticides; city governments restrict landscape irrigation, legislation restricts pesticide usage, and the costs associated with rose care products skyrocket (Zlesak 2006). The sales of the *Knock Out* series of roses illustrate the degree to which consumers are making the shift to low maintenance roses. "To date, *Knock Out* and its siblings have sold between 10 million and 12 million plants in the states," says Steve Hutton, president of Conard-Pyle. "No other rose, not even *Peace*, which took the world by storm 60 years ago has sold like that," (Virag 2007).



The Earth-Kind® Rose Program is the key to overcoming the public's hesitation at growing roses. "Earth-Kind®" is the most prestigious horticulture designation bestowed by the Texas AgriLife Extension Service (part of the Texas A&M system). The designation is awarded based on multi-year scientific research studies, including extensive field tests, conducted by and under the supervision of Texas A&M horticultural experts. Only roses possessing extremely high levels of landscape performance,

Above Photo: EarthKind® Rose Trial at a pocket part in Addison, TX. Since 2005, the City of Addison's Park Department has been converting all of its parks to EarthKind Landscape Management using EarthKind Roses as the foundation plants.

coupled with outstanding disease and insect tolerance/resistance may receive this designation. Earth-Kind Roses have proven to give consistently high landscape performance irrespective of diverse geographic regions and soil conditions they are grown in. Earth-Kind is the most popular and fastest growing, research-based environmental university program of its kind with testing of Earth-Kind roses underway in 27 states and four foreign countries. For these reasons Earth-Kind Roses are *the* perfect prescription for anyone wanting to grow carefree roses.

Earth-Kind Roses have been proven to be the best flowering varieties requiring the least amount of care and maintenance that grow in geographically diverse regions and climate zones and reduce the need for insecticides and fungicides by **95%**.

The Birth of Earth-Kind

Whether you grow one rose bush or 100, someone has surely asked you to recommend a rose that is easy to grow. Prior to our research, the answer to this question was solely based on the personal experience of the individual rosarian. Naturally this shoot-from-the-hip approach has its pitfalls. First and foremost, it does not take into account the horticultural expertise (or lack thereof) of the grower, geographic and growing conditions and the inherent disease resistance of the cultivar recommended.

In the early 1990s, landscape professionals asked Dr. George and the Texas Extension Service for recommendations on roses that gave not only outstanding performance in southern gardens, but also had the characteristics of being low maintenance. Surprised that this question had never been scientifically answered, Dr. George started the Earth-Kind Rose Research Program.

Scope of the Research

The initial 5-year research study evaluated 544 bushes (117 different cultivars) and was designed to identify the most beautiful carefree roses ever developed for Southern gardens. Of the cultivars studied, 11 showed spectacular performance despite very adverse growing conditions and an almost complete lack of maintenance throughout the study period. For example:

- ☛ Rose cultivars included in the study were grown in highly alkaline clay soil with a pH rating between 8.0 and 8.4. (Ideally, roses grow best in slightly acid soils with a pH rating of 6.5);
- ☛ Test beds contained unimproved soil with no soil amendments added at any time during the study period;
- ☛ The roses were NEVER fertilized;
- ☛ The roses were NEVER sprayed with fungicides or insecticides;
- ☛ The roses received NO supplemental watering after the first year;
- ☛ The roses were NEVER pruned other than to remove dead wood.

Study criteria required that researchers subject the selected cultivars to the absolute meanest possible conditions in what can only be described as “rose abuse”. The purpose of such criteria was to replicate in a uniform fashion the extremes that the home gardener levies on his roses. The only acts of kindness these bushes received were the addition of a four-inch layer of mulch in the form of raw hardwood chips maintained on the beds throughout the research period and the addition of drip irrigation during the first year only.

In order to receive the Earth-Kind designation, the cultivars were required to:

- ☛ Exhibit outstanding disease and insect tolerance/resistance;
- ☛ Produce spectacular blooms;
- ☛ Be the best varieties for organic management methods;
- ☛ Reduce the need to apply pesticides/fungicides by 95%;
- ☛ Reduce the need for supplemental watering by at least 70%.

The heat and drought tolerance of Earth-Kind Roses is so strong that all 11 varieties continued to flourish in their second growing season *without supplemental watering* through a 67-day drought with daily temperatures at or exceeding 100° F. The only noticeable effect of heat extremes was a reduction in bloom size.

All roses receiving the Earth-Kind designation **MUST BE** growing on their own roots. Grafted versions of roses bearing the Earth-Kind designation *are not* Earth-Kind roses! Earth-Kind Roses are either highly tolerant or tolerant to blackspot. Research showed that infected

bushes dropped 25% or less of their leaves once a year. None of the Earth-Kind cultivars exhibited significant insect problems at any time during the study period.

If You Can Grow Weeds You Can Grow These!

By January 2001, at the conclusion of the first phase of study, researchers had identified 11 cultivars, which produced outstanding results in southern gardens. Even though the goal of the study was to identify hardy carefree roses for southern gardens many of the cultivars perform equally well in more northern climates, including Colorado (USDA Cold Hardiness Zones 4 - 6)¹, Earth-Kind Roses rated for Zones 4 - 6 are:

Belinda's Dream - this medium-size shrub rose was the first rose to receive the Earth-Kind designation and has been nicknamed "The Rose of the 20th Century". It has fragrant pink blooms throughout the growing season, that resemble hybrid tea blooms with a petal count of 114 and foliage that is a striking blue green color. This rose makes an excellent cut flower with a long vase life. The mature bush size is 5 feet tall and 5 feet wide. (Zone 5 - 9).

Caldwell Pink - a lilac pink carnation-style found rose that grows as a small shrub averaging 4 feet tall by 4 feet wide. This cultivar truly loves the heat and usually starts blooming once temperatures reach 80 degrees. It is not particular about soil conditions and has striking red, orange and purple foliage in the fall. (Zone 6 - 9).

Carefree Beauty (Katy Road Pink) - a shrub rose created by Dr. Griffith Buck that produces fragrant medium pink double blooms throughout the growing season on bushes that are 5 feet tall by 5 feet wide. This rose also produces attractive hips in the late summer and early fall. (Zone 4a - 9).

Climbing Pinkie - This pink semi-double polyantha rose has very fragrant blooms and depending on the climate zone will perform as a repeat bloomer or a

once bloomer. As a climbing rose, canes can reach 10 feet long. If cultivated as a shrub, the bush size will be 5 feet tall by 7 feet wide. It is not uncommon for a mature bush to display 800 blooms each day during the spring blooming season. (Zone 6 - 9).

Else Poulson - a pink floribunda rose that blooms with semi-double flowers throughout the growing season. Because of its growth habit, it is best suited for use in background plantings with a mature size of 5 feet tall by 5 feet wide. (Zone 5 - 9).

Knock Out™ - a cherry red single shrub rose introduced in 2000 that blooms throughout the growing season on bushes that are 4 feet tall by 4 feet wide. This cultivar, named Earth-Kind Rose of the Year in 2004, is known for its extremely high disease resistance and prolific production of magenta foliage. It is the most popular rose ever sold in the United States (Zone 5b - 9).

Marie Daly - a pink polyantha dwarf shrubby rose with semi-double fragrant blooms on an almost thornless bush. This variety is perfect for growing in containers and proved to be tolerant to spider mites. It blooms throughout the growing season on a bush averaging 3 foot tall by 3 foot wide. (Zone 5 - 9).

Mutabilis - also known as the "Butterfly Rose", this China rose has single blooms that change color during their life cycle from yellow to pink to crimson. The bushes bloom throughout the growing season and reach a mature size of 6 feet tall by 6 feet wide. (Zone 6 - 19).

Perle d'Or - a peach polyantha rose that blooms with fragrant pompom blooms throughout the growing season on bushes that are 4 feet tall by 4 feet wide. This cultivar out-performed the rose, Cecile Brunner, in field tests by 40% and thrived on adversity. (Zone 6 - 9).

Sea Foam - a creamy white shrub rose sporting double blooms throughout the growing season with a cascading growth habit on a bush averaging 3 foot tall by 6-foot wide. (Zone 4 - 9).

The Fairy - a light pink polyantha dwarf shrubby rose that has double blooms on bushes 3 feet tall by 4 feet wide. This rose blooms throughout the growing season but does not do well in areas where Cercospora leaf

¹ Because of its terrain, Colorado has many unique micro-climates. It is recommended that gardeners identify the minimum temperature range of their landscape and consult the USDA Cold Hardiness map at Figure 4 at the end of the article.

spot is a problem. This is one cultivar that will survive where temperatures drop to 200 below 0. It is best used in containers, as a mass planting or as a low border. (Zone 4 - 9).

After the initial 11 cultivars were designated, research continued to identify additional cultivars that would grow and thrive with almost no human care. Recent additions of *Ducher*, *Duchesse de Brabant*, *Georgetown Tea*, *La Marne*, *Mme. Antoine Mari*, *New Dawn*, *Souvenir de St. Anne's* and *Spice*, raise the number of roses with the Earth-Kind designation to 19. Hopefully with continued research (and funding from additional sources) gardeners in the South will one day have at least 25 Earth-Kind Roses from which to choose. The newest additions suitable for Colorado gardens are:

New Dawn - released in 1930, this was the first plant patented in the United States. It is a spring-blooming large-flowered climber that produces white-blushed-with-pink blooms that are nicely fragrant. This rose can get really big and needs a stout structure to support it. The average mature size is 20 feet tall and 10 feet wide. While New Dawn will tolerate some light shade, it does better in full sun. (Zones 4 - 9).

La Marne - a polyantha rose that produces great clusters of cup-shaped blooms of 10 petals that are vivid pink with a white eye. This cultivar is very resistant to disease and has shiny foliage with very few thorns. The average bush size is 4 feet tall and 4.5 feet wide. (Zones 4 - 9).

Souvenir de St. Anne's - a sport of the famous, *Souvenir de la Malmaison*, this intensely fragrant Bourbon rose has a deep spice fragrance exploding from light pink semi-double blooms. *Souvenir de St. Anne's* is much hardier and more disease tolerant than its parent. The average bush size is 5 feet tall and 4 feet wide. (Zones 5 - 9).

Earth-Kind Goes National

In 2001, the Houston Rose Society learned that the initial Earth-Kind Rose Research Program was on the verge of being discontinued. The Society quickly extended a substantial financial grant so that Dr. George could continue this important research program. That grant came with one string attached - that Dr. George

and his colleagues expand the research parameters to identify a collection of Earth-Kind Roses that would perform under the same grueling conditions as the original collection, but do so in every state in the country. This would be a huge undertaking - requiring field trials in every US Cold Hardiness Zone - but we were convinced that it could be done.

With the funding supplied by the HRS, work on the National Earth-Kind Rose Research Program began in 2004. The National Study (an expansion of the original research) scientifically evaluates 30 rose cultivars for their suitability for gardens in every state. Roses included in the National Study must not only meet the same criteria as their Earth-Kind predecessors (no spray, no fertilizer, tolerance to all soil types, etc.) they must also be extremely winter hardy to sub-zero temperatures and heat/drought tolerant as well.



Top Photo: Workers from the Houston, Dallas and Collin County Rose Societies brave freezing weather in February 2008 to plant The National EarthKind® Rose Research site in Farmer's Branch, TX. Over 500 roses were ultimately planted at this site as part of the partnership between the Houston Rose Society, the City of Farmer's Branch and the Texas AgriLife Extension Service.

Bottom Photo: Six months after planting (October 2008) at the National Earth-Kind® Rose Research site in Farmer's Branch, plant development and bloom production exceeds expectation.

Roses under evaluation in the National Study include; *Amiga Mia, April Moon, Barn Dance, Belinda's Dream, Blushing Knock Out, Carefree Beauty, Carefree Wonder, Chuckles, Country Dancer, Dublin Bay, Earth Song, Flora Dora, Folksinger, Knock Out, New Dawn, Pearlie Mae, Penelope, Pink Knock Out, Polonaise, Prairie Breeze, Prairie Harvest, Prairie Princess, Princess Verona, Quietness, Sea Foam, Seminole Wind, Square Dancer, Summer Wind, The Fairy and Winter Sunset.*

One tremendous benefit of the National and other studies will be the creation of regional collections of Earth-Kind Roses, similar to the collection already designated for the South. Without a doubt, the importance of the Earth-Kind research to the future of rose horticulture on a national and international scale is priceless!

Earth-Kind Takes Root in Colorado

In January 2008, Tamla Blunt, Diagnostician at Colorado State University's Plant Identification & Disease Clinic at Fort Collins, attended an Earth-Kind presentation given by Janice Dysinger, an Earth-Kind Specialist from Gresham, Oregon. "Intrigued by the concept of roses that could be grown under the conditions described, my research antennae began whirling when Dysinger mentioned that Texas A&M was looking for research partners in northern states to help test and evaluate roses," she explained. Dysinger put Blunt in touch with Dr. George. "When I explained our interest in the Earth-Kind Research to Dr. George and shared with him that testing roses in north central Colorado would not only challenge the plants' tolerance to cold, heat and drought but would do so at 8,500 feet above sea level his excitement at the prospect of testing roses at this high altitude was infectious," explains Blunt. Dr. George put Blunt in contact with David Zlesak at the University of Minnesota.

Zlesak, he explained, was heading up an Earth-Kind Research Study on a special collection of 20 roses for their performance in the extreme north (Zones 3 and 4a). Working in collaboration with Zlesak and University of Minnesota, Colorado State University has begun testing all 20 of the candidate cultivars in the Northern Earth-Kind Rose Research Program (a total of 80 plants). The 20 roses being tested by CSU include *Alexander MacKenzie, Brite Eyes, Carefree Beauty, Frontenac, George Vancouver, John Cabot,*

John Davis, Lena, Morden Blush, Olé, Polar Joy, Prairie Joy, Quadra, Ramblin' Red, Sea Foam, Summer Wind, Sunrise Sunset, Sven, William Baffin and Yellow Submarine. This collection is also being tested by Kansas State University and Texas A&M-Commerce.

Blunt and her colleague began site preparation in May 2008, followed by planting a month later. Because of the short growing season (3 to 4 months), there was a concern about how the roses would fare subsequent to the first killing frost that arrived in early September 2008. The roses appear to have done very well through the winter. "As the roses enter the second growing season the plants have, thus far, experienced no appreciable insect or disease problems," reports Blunt. Adding, "The main challenge to our study has been the local deer population, which seem to think the rose buds and new leaves of the test plants are their dessert."



Animal friends visiting the CSU test rose garden.

"Our trial site is generating quite a bit of interest in the local community that are following the development of the plants on their commute through town. The trial site is located just off the main road that runs through Crystal Lakes," states Blunt. Crystal Lakes is approximately 100 miles north of Denver.

Recommendations for the Home Gardener

Roses receiving the Earth-Kind designation do not require regular pruning. If the bushes grow outside their bounds, a light shaping is all that is necessary. We do recommend that you remove any dead wood as it develops. Research identified all of the Earth-Kind Roses as self-deadheading (meaning they drop spent blooms on their own), however the bloom cycle will be accelerated by one to two weeks if the spent blooms are removed.

All roses need to be planted in a location that has good air circulation and receives at least six hours (and preferably eight hours) of full direct sunlight. One observation resulting from years of Earth-Kind Rose Research has been the correlation between plant spacing and disease development. Increasing the distance between plants appears to reduce the incidence and severity of fungal diseases in roses. While this observation deserves further study, Earth-Kind protocols suggest that a *minimum* of 1 foot of open space between *mature* plants be maintained. This requires that home gardeners identify the average mature bush size (at the time of planting) and plant their roses sufficiently far apart in order to insure the minimum spacing requirements at the plant's maturity. In Colorado research trials, rose bushes were planted six feet apart.

Texas A&M has identified the most environmentally responsible approach to soil management that has been scientifically tested in all soil types throughout the country. It is a compost and mulch-only approach that allows the home gardener to work the soil only one time (at the initial planting) and then from that point on, never work the soil again. Bed maintenance is limited to the removal of annual weeds and top dressing beds with mulch to maintain a minimum three to four-inch layer of shredded hardwood mulch.

Home gardeners should refer to the guidelines in the **Earth-Kind Environmental Landscape Management** article for additional information on how to make landscape plantings successful and productive with the absolute minimum of maintenance and expense.

You Can Be Part of this Research Project

In 2004, the Earth-Kind Rose Brigade was formed as a result of the overwhelming public response to the research program. The Brigade provides the gardening public, whether they are homeowners, nurserymen, or curators of botanic/public gardens a vehicle to meaningfully participate in this monumental effort. Being a Brigade member involves no dues, no registration fees and no attendance at meetings.

Brigade members are simply asked to grow roses pre-identified by Texas A&M as possible candidates for study under the Earth-Kind program. Members may grow as many or as few bushes as they wish. Brigade

members make three simple commitments:

- ☛ To grow the selected cultivar(s) for 3 years;
- ☛ To NEVER spray the Earth-Kind candidates with any chemical or organic insecticides/fungicides; and
- ☛ To report their observations annually on the Earth-Kind website, www.earthkindroses.tamu.edu.

These field trials provide valuable insight and validation to the research program, enabling the research partners and the Houston Rose Society to expand the program to a national level.

Through the Brigade, rose societies, city park departments, master gardener groups and botanic gardens are sponsoring display gardens devoted to Earth-Kind Roses within their own communities. This effort not only provides beautiful gardens showcasing roses requiring almost no care, it also provides valuable field trials (necessary for any scientific research study). Individuals and/or groups interested in participating in the Earth-Kind Rose Brigade are urged to contact Gaye Hammond.

Earth-Kind Roses Benefit Local Rose Societies

The public response to Earth-Kind Roses is exploding at levels that could have never been anticipated and the national response has been staggering. Since the introduction of Earth-Kind Roses to the public every lecture, full-day symposium, and Earth-Kind training school has enjoyed capacity crowds. People that would not otherwise attend a rose lecture come to Earth-Kind presentations and leave convinced that these are truly roses that they can grow. City park departments, public and botanic gardens are converting to Earth-Kind landscape management using Earth-Kind roses as the foundation plantings. Eight universities in Colorado, Minnesota, Kansas, Nebraska, Iowa, Louisiana and Texas are currently testing Earth-Kind roses. Public gardens in Iowa, Nebraska, Kansas, Kentucky, New York, Ohio, Florida, Louisiana, Oregon and Washington, D.C. currently feature Earth-Kind Rose displays.

The Earth-Kind Rose Program is undoubtedly the largest, most aggressive horticultural research project

ever undertaken on roses. Ultimately, its applications will benefit gardeners in every state. Earth-Kind has become the horticultural gardening system of the 21st century!

References

Harp, DA, Zlesak, D, Hammond, G, George, S and Mackay, W (2008), EarthKind® Rose Trials - Identifying the World's Strongest, Most Beautiful Landscape Roses, In: Zlesak D (Ed) Roses, Floriculture and Ornamental Biotechnology 3 (Special Issue 1), with permission from Global Science Books, Ltd., Isleworth, US (www.globalsciencebooks.info)

Virag, I (2007), A man outstanding in his field (of roses). Newsday, April 18, 2007

Zlesak, DC (2006) Rosa x hybrida L. In: Anderson NO (Ed) Flower Breeding and Genetics: Issues, Challenges, and Opportunities for the 21st Century, Springer, The Netherlands, pp 695-738

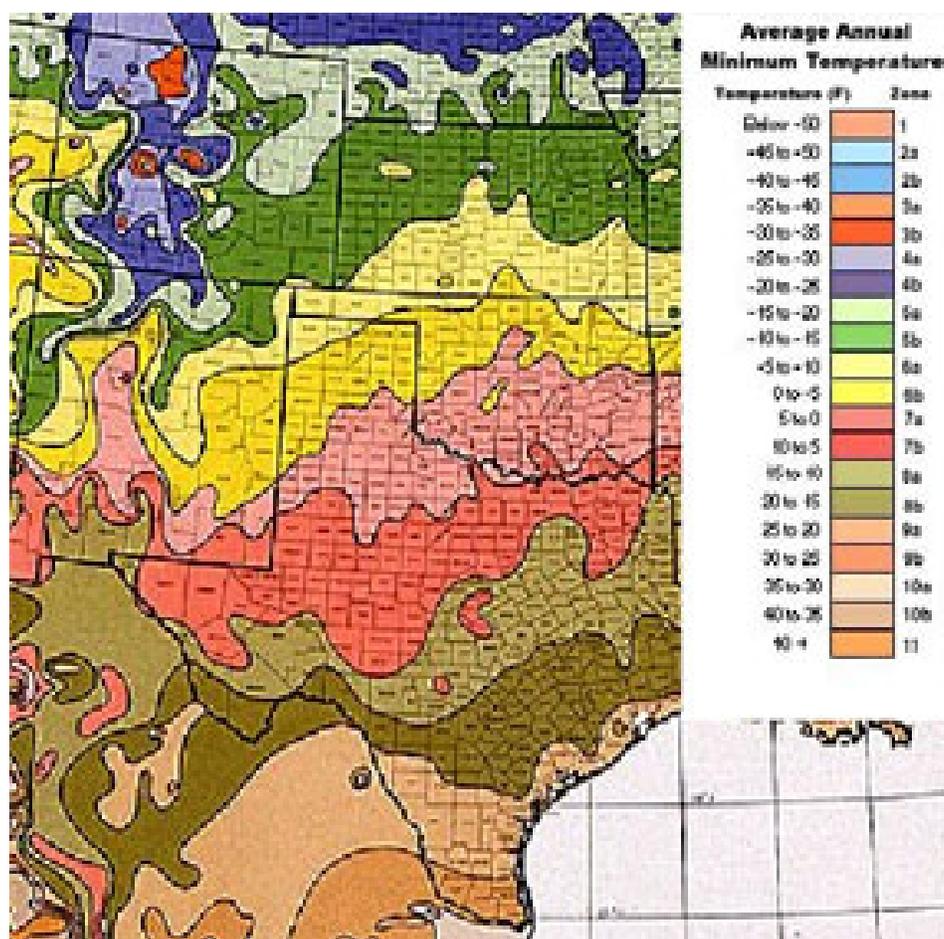


Fig. 4 2003 US National Arboretum “Web Version” of the USDA Plant Hardiness Zone Map, USDA Miscellaneous Publication No. 1475, Issued January 1990