

Dates and Events of Note

January 7-9 Empire State Green Industry Conference Riverside Conference Center contact <http://www.nysta.org> or call 800-873-8873

January 22–February 24 Horticulture School contact <http://counties.cce.cornell.edu/monroe> Karen Klinenberger ksk8@cornell.edu or 461.1000x225

January 22–February 24 30-hour pesticide certification category 3a certification & recertification credit available see January 22 above

January 22–February 24 30-hour pesticide certification category 7a, 7f, 8 and recertification credit contact see January 22 above

January 22– February 24 30-hour Certified Nursery/Landscape Professional training contact Liz Berkeley eab11@cornell.edu or 461.1000x243

February 4 Greenhouse Crops Seminar CCE Monroe contact Walt Nelson wnn1@cornell.edu or 461.1000

February 12 GardenScape Professionals Education Day, Burgundy Basin contact for registration Sarah Burchell sarah@gardenscapepros.com or 455.4562

Ongoing

CCE Monroe Plant Diagnostic Lab identification and management recommendations for diseases, pests and weeds, contact Liz Berkeley eab11@cornell.edu, 461.1000x243

Cornell Cooperative Extension in Monroe County provides equal program and employment opportunities.

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Horticulture Notes

Early Winter 2008

Greenhouse Energy Conservation Checklist

John W. Bartok, Jr.

Emeritus Agricultural Engineer University of Connecticut

Increasing energy costs make conservation and efficient use of facilities an important part of today's greenhouse operation. New greenhouse designs, better glazing, improved heating and ventilating equipment and new management systems should be included when upgrading or adding on. With typical annual energy usage being 75% for heating, 15% for electricity and 10% for vehicles, efforts and resources should be put where the greatest savings can be realized.

Reduce Air Leaks

Keep doors closed - use door closer or springs.

Weatherstrip doors, vents and fan openings. For example, a 48" fan louver that fails to close properly leaving 1" gaps, allows 23,000 Btu/hr of heat to escape costing \$0.35 if you are burning \$1.50 fuel oil.

Lubricate louvers frequently so that they close tight. A partially open louver may allow several air changes per hour. Additional fuel is needed to heat this air. Shut off some fans during the winter and cover openings with insulation or plastic to reduce infiltration of air.

Repair broken glass or holes in the plastic covering.

Double Covering

Line sidewalls and endwalls of greenhouse inside with poly or bubble wrap to achieve the thermopane effect. Install double wall polycarbonate structured sheets to get insulation effect and reduce recovering labor.

Use poly with an infrared inhibitor on the inner layer for 15% savings.

Payback is 2-3 months.

Sterile ornamentals	1
Green Industry Show	3
Pageant Fungicide	4
Glyphosate	4
Leadership	5
Callery Pear	7
Dates and events of note	8

Energy Continued page 2

Sterile Barberrry & Euonymus



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 Cornell Invasive Species Educator
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Two University of Connecticut researchers are working to keep the ornamental shrub Japanese barberry and winged euonymus available to gardeners and landscapers, while protecting the environment from uncontrolled spread.

Mark Brand, professor, and Yi Li, an associate professor of plant science, are experimenting with different approaches in developing a sterile form of these plants, without producing seeds.

Japanese barberry, introduced to the United States from Asia in the 1800s, is considered invasive by many. It is deer-resistant plant and tolerant of a number of different conditions or sites.

For the same reason, this shrub is such a popular choice for landscapers, easy growth and establishment, it creates havoc in the environment.

Japanese barberry seeds may disperse, sometimes displacing and overtaking native species and reducing biological diversity.

Brand is pursuing traditional breeding techniques to create a Japanese barberry plant with three complete sets of chromosomes. He is also finger printing the wild green and smaller ornamental varieties in commerce in helping determine whether invasive populations of the plant originated from the wild barberry or the ornamental variety. Brand also is measuring the reproductive potential of the fruit from the garden cultivars.

Li is using his own patented "seedless fruit technology" with the recombinant DNA in developing sterile Japanese barberry, as well as a sterile version of winged euonymus, resulting in transgenic plants.

A sterile Japanese barberry produced by Brand's method might not have the characteristic red berries. Li's would. But Brand's sterile barberry would likely stir less cause for concern and have fewer regulatory hurdles to clear, because, unlike Li's, it would not be transgenic. Either way, it could take several years to produce a sterile plant and even longer before they are ready for introduction to the marketplace.

Add a single or double layer of plastic over older glasshouses to reduce infiltration and heat loss by 50%.

Energy Conserving Blanket

Install a thermal blanket for 20%-50% savings. Cost is \$1.00 - \$2.50/sq ft. Payback is 1-2 years. Tight closures should be maintained where curtains meet sidewalls, framing or gutters. Use a U-shaped trap to prevent heat from escaping overhead. Heat and water lines should be insulated or located below the blanket.

Foundation and Sidewall Insulation

Insulate the foundation - place 1-2" polyurethane or polystyrene board to 18" below ground to reduce heat loss. This can increase the soil temperature near the sidewall as much as 10 degrees during the winter.

A correctly calibrated thermostat saves hundreds of dollars for each 2°F it was off. Insulate the kneewall or sidewall to bench height. Use 1" to 2" of insulation board. Applying 2" of foam insulation to a 3' high kneewall on a 28' x 100' greenhouse will save about 400 gallons of fuel oil/year. Insulate behind sidewall heat pipes. Use aluminum faced building paper or insulation board behind to radiate heat back into the growing area. Leave air space next to wall to prevent frost damage to the wall.

Site Location

Locate new greenhouses in sheltered areas to reduce wind-induced heat loss, if this does not reduce light.

Install windbreaks on the north and northwest sides of the greenhouse. The windbreak can be a double row of conifer trees or plastic snow fence.

Space Utilization

Increase space utilization to 80% - 90% with peninsular or movable benches.

Install multi-level racks for crops that don't require high light levels.

Grow a crop of hanging baskets on overhead rails or truss-mounted

conveyor system.

A roll-out bench system can double growing space. Plants are moved outside during the day.

Efficient Heating System

Installation of floor or under-bench heat will allow air temperature to be set 5° - 10° F lower.

Yearly maintenance - Check boiler, burner and backup systems to make sure they are operating at peak efficiency. Have furnaces cleaned and adjusted and an efficiency test run before heating season. A 2% increase in efficiency for a 30' x 150' greenhouse will save about 200 gallons of fuel oil.

Clean heating pipes and other radiation surfaces frequently.

Check accuracy of thermostats - correcting a reading that is 2° F high will save \$100-\$200.

Install electronic thermostats or controllers with a 1° F accuracy. Potential yearly savings of 500 gallons of fuel oil in a 30' x 100' greenhouse when changing from a mechanical to electronic thermostat or controller.

Aspirate thermostats or sensors for more uniform temperature control. Differential between on and off can be reduced as much as 6° F.

Install horizontal air flow (HAF) fans to get more uniform temperature in the growing area.

Insulate distribution pipes in areas where heat is not required.

Check and repair leaks in valves, steam traps and pipes.

Efficient Cooling System

Build new greenhouse with open-roof design to eliminate the need for fans.

Install roll-up or guillotine sides to reduce the need for fan ventilation.

Use shading to reduce the need for mechanical cooling.

Install evaporative cooling to get better temperature control during the summer.

Select fans that meet AMCA standards and have a Ventilation Efficiency Ratio greater than 15.

Use the largest diameter fan with the smallest motor that meets ventilation requirements.

Keep doors closed when fans are operating. Locate intake louvers to give uniform cooling.

Conserve Electricity

Have wiring system inspected for overloading, corroded parts and faulty insulation.

Replace 3 hp or larger motors with high efficiency ones to reduce electric consumption by 2-5%.

Water conservation (72%): While almost a third of households have no plans for water conservation, the remaining population has a high (43%) and very high (28%) level of interest in conserving water.

Native plants (52%): In what was a relatively unknown topic only a few years ago, a majority of gardeners expressed interest (31% high and 21% very high) in native plants.

Organic gardening (45%): Though less than a majority (30% high, 15% very high), public interest in organic gardening has grown from an estimated single digit a decade ago to almost half of all households today.

Sustainable gardening (38%): It's a relatively new concept for gardeners and may suffer from a lack of uniform definition and public understanding. Sustainable gardening has gained the attention (27% high and 11% very high) of almost 2 out of every 5 households.

Web-based gardening information (27%): Even among the tech-savvy "under 25" group, the GWAFF says, positive response was just 36%. The challenge here is making on-line gardening information interesting and useful to the public.

Invasive Callery Pear?

Walt Nelson, wnn1@cornell.edu

The Bradford cultivar of Callery pear is widely recognized as having weak branch attachment, due in large part to the numerous branches very close to one another in a very short space on the trunk. Horticulturists recognize the genus as a very good street and nurserymen have identified and are marketing a number of cultivars that are not prone to branch breakage.

A positive attribute of the Bradford pear was the sterile. Because several of the strong branched cultivars are NOT sterile they are producing viable seeds. Seedlings of these strong cultivars are showing up in unintended sites and invading disturbed areas.

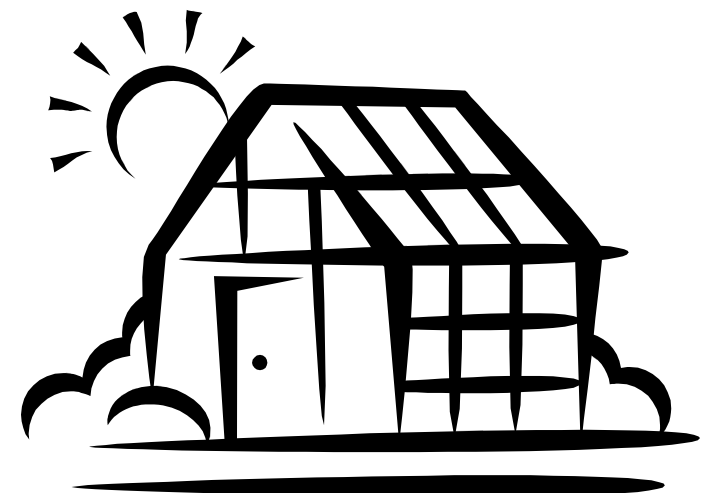
The habit of seedlings going a stray is troubling to those working with invasive species. What this could do to how we use callery pear will play out as the discussion continues. Stay tuned.

USDA's Rural Energy for America

Among the provisions of the 2008 Farm Bill is the Rural Energy for America Program (REAP). Managed by USDA Rural Development, this program authorizes \$225 million in grants and loan guarantees for energy efficiency and renewable energy projects. Farms and rural businesses are eligible. A simplified application process is available for projects costing less than \$200,000. To learn more about how the program works, see www.farmenergy.org, the web site of the Environmental Law and Policy Center. In New York contact Thomas Hauryski, 607.776.7398 or thomas.hauryski@ny.usda.gov

A recent ATTRA [National Sustainable Agriculture Information Service, the (acronym were its former name)] newsletter links to several agriculture energy calculators, one of which is for greenhouses http://attra.ncat.org/energy_calculators.html. If as a crop producer (such as greenhouse or outdoor ornamentals) I encourage you to visit the ATTRA site <http://attra.ncat.org/>. They also offer an electronic newsletter subscription.

New York Incentives for Renewables and Efficiency link is <http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=NY&RE=1&EE=1>



A wealth of online research based, unbiased information for growers is available on the ATTRA web site.

Summer Gardening Survey

Walt Nelson wnn1@cornell.edu

What plans do you have for the coming sales season? How did your previous summer match up with those nationally? Below is the summary commissioned by the Garden Writers Association Foundation (GWAF) from the summer of 2008. The survey, conducted in early June. Using the past to make decisions for the future in these tight economic times is chancy, at best. More correctly stay connected with at least a sampling of your customers as a pulse of where your business is and should be going.

The Survey

The majority of American consumers (75%) have some form of a lawn or garden. (*Ed. note: from here forward the term "household" and "consumer" will refer to households and consumers with a lawn or garden.*)

Approximately 1 in 4 consumers expected to use a combination of organic and chemical products and another quarter plan to use only organic/natural products to deal with insect problems, while nearly a sixth plan to use only chemical products. Less than a third planned to do nothing about insect problems.

When it comes to conserving water, approximately one in four (24%) of Americans planned to use more mulch to do the job, while about one out of seven planned to use either drip irrigation or more drought tolerant plants. More than a fourth (27%) say they do not water while nearly a third (30%) did not plan to conserve water.

Container Gardening was anticipated to be down in 2008 from 2007, was yours?

The majority of consumers (69%) planned to spend less than \$500 on their yards and gardens this year, while nearly a fifth (18%) planned to spend between \$500 and \$1,500. Another 8% planned to spend more than \$1,500 (\$1,500: 6%; \$2,500 to \$5,000: 1%; >\$5,000:1%).

On average, consumers planned to spend about \$771 on their yards and gardens this year, where expenditures include making

improvements and doing maintenance.

For the majority of consumers (55%), this figure is roughly the same as it was last year, although more than a fifth (22%) are planning to spend more this year and exactly a fifth (20%) are planning to spend less this year.

A large number of Americans – over two fifths (43%) – grow vegetables in their gardens, while 57% do not. Those 57% see gardening as being a time-consuming, space-consuming, work-producing process. Let them know this: No space? No time? No problem!

The top reasons those who do not grow vegetables in their gardens include: No time (29%), No interest (21%), No space (20%) Less common reasons for not growing vegetables include lack of knowledge (8%) and not enough sunlight (6%).

This year, about two out of five (39%) consumers said they would participate in container gardening. This is down from 47% last year.

The top reasons given for participating in container gardening include: Outdoor decoration (37%), Little or no garden space (24%), Ease of watering (20%), Portability (16%), Limited time (15%).

Consumers who have a lawn or garden were asked to rate their interest level (very high/high/low/very low) in organic gardening, water conservation, native plants, web-based gardening information and sustainable gardening. Below are the combined totals for positive rankings (high and very high) consumers gave each item: Water conservation (72%), Native plants (52%), Organic gardening (45%), Sustainable gardening (38%), Web-based gardening information (27%).

This year, approximately two out of five consumers purchased most of their spring garden plants from mass merchandisers/do-it-yourself stores (42%) or garden centers/local gardening stores (39%). Together, these channels represent the vast majority of spring plant purchases (81%). Mail order catalogues (2%) and Internet websites (1%) each accounted for a small portion of total sales by volume and are roughly on par with each other. Other, undefined outlets accounted for the balance of sales (10%).

The garden trends survey also asked consumers with gardens or lawns to rate their interest level (very high, high, low, very low) in a variety of topics. Here's what they're interested in:

Check for proper belt tension and alignment. Replace incandescent bulbs with low wattage fluorescent or HID bulbs. Save 2/3rds on electricity. Install motion detectors to control security lights so they are not on all the time.

Trucks and Tractors

Regularly scheduled tune-ups can save 10% on fuel usage. Keep tires properly inflated.

Avoid lengthy idling. Idling can consume 15-20% of the fuel used.

Run equipment in the proper gear for the load.

Water Systems

Locate hot water tanks as close as possible to the largest and most frequent use. Insulate pipes.

Heat water to the lowest temperature needed, usually 120°F is adequate.

Use pipe size large enough to supply necessary water at minimum friction loss.

Eliminate water leaks - A dripping faucet at 60 drops/min. will waste 113 gallons/month.

Management

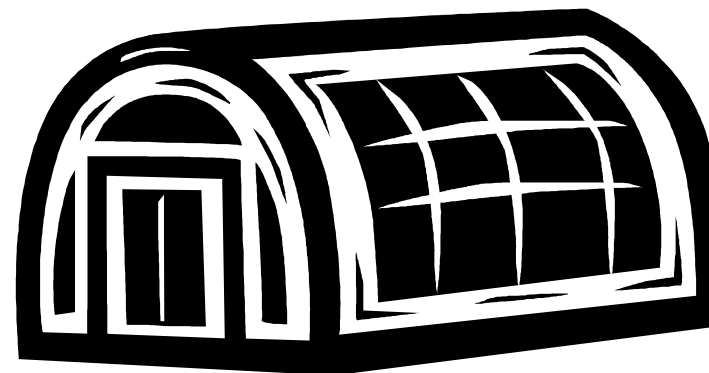
Lower night temperature - Fuel consumption is reduced 3% for each 1°F night temperature is lowered.

Delay starting the greenhouse by a week or more. Build a germination/growth chamber to start seedlings.

Keep growing areas full at all times.

Additional information can be found in Energy Conservation for Commercial Greenhouses - NRAES-3, 100 pages, \$20.00 available from NRAES <http://www.nraes.org>, (607) 255-7654 or email NRAES@CORNELL.EDU

For information about NYSERDA and how they may be able to help you better manage your energy use contact Linda Hardie at lmh@nyserda.org 716-842-1522, ext. 3006 or www.agenergysolutions.org



Empire State Green Industry Show

The Empire State Green Industry Show, Rochester Riverside Convention Center, January 7-9, 2009, features many educational sessions and events tailored for those who work in all aspects of the turf and ornamentals industries. Hosted by the New York State Turfgrass Association (NYSTA), Nursery and Landscape Association (NYSNLA), and New York State Arborists – ISA Chapter, Inc. (NYSA), the show also gives attendees the opportunity to network with professionals from different industry backgrounds. Education tracks, featuring nursery and landscape, arborist and turf sessions, will offer CNLP, ISA, DEC credits and more.

Key green industry vendors will showcase their products and services at the 200 booth trade show.

According to Owen Regan, President of the New York State Turfgrass Association, "The Show is unique in that it caters to a wide range of green industry professionals. Those who are looking for information specific to their professions will find a wealth of opportunities here. However, networking with professionals from different backgrounds provides even more prospects for growth and learning. I encourage anyone who has not attended the Empire State Green Industry Show to come to Rochester and see what the buzz is about. And, those that come back each year, we look forward to seeing again in January."

Featured speakers include Dr. Paul Vincelli, Extension Professor at the University of Kentucky, reviewing the role of fungicides in turf disease management and discuss non-fungicidal management options. He'll also review basic plant diagnostics in the field and laboratory, and the difficulty determining the cause of turfgrass diseases. Dr. Marty Petrovic, Cornell Professor of Turfgrass Science, will discuss how to add precision to a nutrient management program in order to save money, control turf quality and minimize pest problems. Dr. John Ball, Professor of Forestry, South Dakota State University, will discuss all aspects of tree care including transplanting, diagnostics, plant health care and IPM, marketing techniques, tree risk liability and arborist safety.

For a full listing of all classes, descriptions and registration go to <http://www.nysta.org> or call 800-873-8873.

The Green Industry Conference is again in Rochester and now in January

Broad-Spectrum Pageant Fungicide Now Labeled in NYS

The broad-spectrum fungicide Pageant, from BASF, is now labeled in NYS. Pageant is labeled for use on containerized and field-grown ornamentals and flower bulbs in greenhouses, shadehouses, outdoor nurseries, retail nurseries, golf courses, residential and commercial landscapes, and interiorscapes.

Pageant is a locally systemic material and will move upward from the point of contact to the leaf margins as well as translaminarily through the leaf. Applications can be made as a spray, drench or bulb dip, though aerial application is not allowed in NYS

When including the new Pageant Fungicide in your rotation, be sure you are changing chemical classes.

The restricted entry interval (REI) is 12 hours, and the product is a restricted material in NYS. Required personal protective equipment (PPE) for applicators and other handlers includes long sleeved shirt and long pants, waterproof and chemical-resistant gloves (such as nitrile, butyl, neoprene, and/or barrier laminate), and shoes plus socks.

Pageant contains two active ingredients – boscalid and pyraclostrobin. Boscalid is in the chemical family Group 7, or carboximides, and pyraclostrobin is in the chemical family Group 11, or strobilurins or QoI's.

Do not rotate Pageant with chemicals in Group 7, such as flutolanil (e.g., Contrast or Prostar) or with chemicals in Group 11, such as pyraclostrobin (e.g., Insignia), azoxystrobin (e.g., Heritage), trifloxystrobin (e.g., Compass O), and kresoxim-methyl (e.g., Cygnus).

It is not allowed to apply Pageant to crops intended for food or feed use, for vegetable crop production, or for production of vegetable transplants for outdoor use. Other restrictions include: do not make more than 2 sequential applications and do not exceed 7.3 lbs (118 oz) of product per acre on a use site per year.

It is also recommended that Pageant is not applied to plants that show phytotoxicity injury or stunting

produced by prior applications of pesticides.

Do not expose grapes and the ornamentals wintercreeper (*Euonymus vegetus*), or nine bark (*Physocarpus opulifolius*) to spray or drift containing Pageant as injury will result. Petunia and impatiens flowers may become discolored by spray applications of Pageant; apply with caution. For plants not listed on the pesticide label as tolerant, test a few plants and watch for signs of phytotoxicity before applying to the entire crop.

Glyphosate Injury

The non-selective herbicide Glyphosate is being implicated in injury to woody plants when it did not come in contact with green vegetation. The real culprit summarized by Ohio State horticulturist Hannah Mathers appears more the surfactant and less the glyphosate, although the materials are working together to create the damage.

The surfactant improves the absorption of the active ingredient. With the help of the surfactant the glyphosate is absorbed by bark and thus weakened. The resulting 'glyphosate damage' is bark splitting. Thinner barked trees are more susceptible to absorption and resulting damage.

Correct application techniques and timely, judicious use can minimize or prevent the damage.

Paper Wasps combat Fall Army Worm

D. W. Held, C. Wheeler, C. M. Abraham, and K. Pickett Auburn University

The biology and role of paper wasps (*Polistes* spp.) in turfgrass have not been studied. The objective of the study was to identify common species of paper wasps attacking fall armyworm larvae and to investigate foraging activity in turfgrass. It is the first to document species of *Polistes* associated with predation of turf-infesting caterpillars and to investigate their foraging activity on fall armyworms. Recommendations for use of pesticides and application scheduling are discussed.

Ed. note: Their research relates to the fall army worm. The insect plaguing field crops and lawns in New York last summer was the Common Army Worm. It is unknown if the paper wasp also attacks the common army worm. For further information about their research <http://plantmanagementnetwork.org/ats/>

A Dozen Do's of Change Leadership

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If you manage people, or even attempt to manage yourself, I recommend subscribing to the daily e-newsletter [SmartBrief on Leadership](http://www.smartbrief.com/leadership/) (visit www.smartbrief.com/leadership/ to subscribe). I found a nugget in one this week that I thought might be helpful if you are leading changes within your company. How to balance the business stuff with the people stuff? In brief, here's what the authors recommend.

1. Catalyze change: Champion an initiative or a significant change, consistently promote the cause and encourage others to get on board.
2. Cope with transition: Recognize and address the personal and emotional elements of change.
3. Show a sense of urgency: Take action, move fast and accelerate the pace of change for everyone.
4. Demonstrate realistic patience: Know when and how to slow down the pace so that people can cope and adapt.
5. Be tough: Make difficult decisions with little hesitation or second-guessing.
6. Be empathetic: Take others' perspectives into account; understand the impact of your actions and decisions.
7. Show optimism: See the positive potential of any challenge and convey that optimism to others.
8. Be realistic and open: Don't shy away from difficulties, speak candidly about the true situation and admit personal mistakes.
9. Be self-reliant: Be confident in your ability to handle new challenges.
10. Trust others: Be comfortable with others doing their part; stay open to others' input and support.
11. Capitalize on strengths: Know your individual and organizational strengths and attributes; confidently apply them to tackle new situations and circumstances.
12. Go against the grain: Show willingness to learn and try new things—even when the process is difficult or painful.

Osteospermum Culture

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Osteospermum or Cape Daisy, native to South Africa is a relative new comer (<25 years) to American gardens. During hot summers they thrive as bedding and container plants. Successful producers embrace these Osteo cultural suggestions.

Grow in FULL sun. Don't grow them under hanging baskets. They need high light. Shade yields floppy, stretched plants.

Pinch them EARLY (even while they're still in the plug tray) and hard—pinch to just five or six nodes. A hard pinch encourages the lower breaks to come out. A soft pinch will result in fewer breaks and floppy plants.

Start WARM for two weeks (70-75F days, 60-65F nights); then grow them COOL for five weeks (day and nights below 60F; 54F is ideal); then finish them WARM (using the same warm temperatures above) for the last three to four weeks. The cold period "stacks" the internodes and sets the first buds, while the warm period gives rapid growth of the side shoots.

Gardeners should plant them in a sunny location. They also thrive in a pot on a sunny patio or sun drenched border!

Keep well watered, especially the first two weeks after planting!

For best garden performance fertilize a weekly basis with a complete fertilizer. Consider top dressing containers with Osmocote when the plant is purchased. This sustains and promotes flowering.

Gardeners should dead head, removing wilted flowers on a regular basis, prolonging flowering. They may also want to remove the peduncle to tidy the plant.

Cutting back Osteospermums won't harm them. On the contrary. They will grow new fresh side shoots.

Plants shed cold snaps both early and late and go on to thrive in summer's heat.

Osteospermums or Cape Daisy are another flower

catching the gardener's eye with an eye of their own