

Sustainable Strategies to Help Plants Survive & Thrive in Challenging Situations



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ADAPT GARDENING PRACTICES TO CHANGING CLIMATE

- Prolonged periods of excessively high temperatures
 - High temps can injure plants, interfere with pollination and fruit set
- Drought, heavy rains, flooding
- Preserve and improve the soil
 - Soil is a carbon reservoir
 - Healthy soil requires less fertilizer
 - Increase organic matter in soil
 - Helps manage stormwater
 - Improves soil's ability to absorb stormwater
 - Improves drainage in heavy soil
 - Increases water holding ability in fast draining soils
- Minimize soil disturbance to minimize CO₂ released
 - See No Dig blog on Milorganite.com
- Grow a diversity of plants, especially native plants when appropriate
- Keep the soil covered year-round with mulch and / or plants
 - Reduces risk of soil erosion and compaction
 - Covered soil is cooler than bare soil
- Keep soil filled with roots year-round
 - Roots release sugars and other compounds that support soil microbes
 - As old roots decompose, they add organic matter to the soil
 - Roots provide pathways through soil for stormwater
 - Help remove pollutants from stormwater before entering groundwater
 - Use cover crops in vacant gardens

SYMBOL KEY

SD - SUNNY & DRY / **DRSH** - DRY SHADE / **CL** - CLAY / **DEER** - DEER RESISTANT
R - RABBIT RESISTANT / **M** - MOIST / **W** - WET / **BW** - BLACK WALNUT RESISTANT
S - SALT / **PPOY** - PERENNIAL PLANT OF THE YEAR

SUNNY AND DRY

- Group plants with similar moisture needs
- Provide sufficient water the first few years to establish drought resistance
- Water thoroughly and less frequently to encourage deep, drought tolerant roots
- Mulch the soil

A FEW PERENNIALS

- Lamb's Ear - *Stachys byzantina* - SD, BW, DEER, R (12-18")
- Thyme - *Thymus* - SD, DEER, R, groundcover
- Prairie Smoke - *Geum triflorum* - SD, DEER (6", slowly spreads)
- False Blue Indigo - *Baptisia australis* - SD, DEER, R, S, CL, PPOY (3-4')
- Blanket Flower - *Gaillardia* - short lived, SD, DEER, R, S (12- 4")
- Threadleaf Coreopsis - *Anacis verticillata* 'Zagreb' - SD, DEER, R, S (18")
- Catmints - *Nepeta* - select non aggressive species / cultivars, SD, DEER, R
 - Catwalk Queen - new for 2026 (10 - 12"), Walker's Low PPOY 2007
- Calamint - *Clinopodium nepeta nepeta* - SD, DEER, R, PPOY 2021 (12-18")
- Ornamental Onions - *Allium* - SD, DEER (12-18")
 - Windy City, Millenium PPOY 2018
- Lavender - *Lavandula* - SD, DEER, R (12-18")
 - Munstead & Hidcote hardier, Phenomenal robust
- Pale Purple Coneflower - *Echinacea pallida* - SD, DEER, CL (2-3')
- Rattlesnake Master - *Eryngium yuccifolium* - SD, DEER, R, CL (3-5')
- Lavender Hyssop - *Agastache foeniculum* - SD, M, DEER, R, CL (3-4')

- Butterfly Weed - *Asclepias tuberosa* - SD, DEER, R, S, PPOY 2017 (1-2')
- *Liatris* - *Liatris punctata* - DEER (2') & *Liatris aspera* - SD (3') are the most drought tolerant
- *Rudbeckia hirta* - biennial or short-lived perennial, SD, M, DEER, S, CL (2-4')
 - Treasure Trove - hybrid (32 - 38") septoria leaf spot resistant
- Russian Sage - *Salvia yangii* - SD, DEER, R, S, PPOY 1995
 - Blue Jean Baby (28-34"), Denim 'n Lace (28-32")
- *Sedum* - *Hylotelephium*, *Petrosedum*, *Phedimus*, *Sedum* - SD
 - *Petrosedum rupestre* 'Angelina' (3-6")
- Showy Goldenrod - *Solidago speciosa* - native, less aggressive than others, SD, DEER, R, BW (2-4')
 - Fireworks Goldenrod - *Solidago rugosa* - SD, M, W, DEER (24-42")
- Aromatic Aster - *Symphyotrichum oblongifolium* - SD, DEER, R, BW (1-3')
- Heath Aster - *Symphyotrichum ericoides* - SD, DEER, BW (1-3')
- Hens 'n Chicks - *Sempervivum* - SD, S
- Adam's Needle - *Yucca filamentosa* - SD, DEER (may nibble), R, S (3', up to 8' in bloom)
 - Color Guard, *Yucca glauca* & Dragon Slayer shown
- Blue Fescue - *Festuca glauca* - SD, DEER, BW, S (my experience) (6-12")
- *Festuca arundinacea* 'Glow Sticks' - SD, DEER, R, S, (12-18", 36" in bloom)
- Blue Grama Grass - *Bouteloua gracilis* 'Blonde Ambition' - SD, BW (30-36")
- Prairie Dropseed - *Sporobolus heterolepis* - SD, DEER, CL, S, BW (2-4')
- Little Bluestem - *Schizachyrium scoparium* - SD, DEER, CL, BW, PPOY 2022 (2-4'+)
 - Blue Heaven (42-54") and Little Red Fox (24-30") shown
- Switchgrass - *Panicum virgatum* - SD, DEER, CL, S, BW (3-6')
 - Northwind - PPOY 2014 (4-5')
 - Prairie Winds series (54-60') Niagara, October Sky, Apache Rose
- Big Bluestem - *Andropogon gerardii* - SD, DEER, CL (5-8')
 - Blackhawks PPOY 2026 (5'), Holy Smoke (5-6'), Red October (4-6')

A FEW SHRUBS

- Bearberry - *Arctostaphylos uva-ursi* - SD, DRSH, S (6-12")
- Texas Scarlet Flowering Quince - *Chaenomeles speciosa* - SD, DEER, CL, S (3-4')
- Lilac - *Syringa* - SD, DEER, R, CL, S, Bloomerang® (3-5')
- Ninebark - *Physocarpus opulifolius* - SD, M, W, DEER, CL, BW (3-8')
- Kodiak Bush Honeysuckle - *Diervilla* x - SD, DRSH, DEER (3-4')
- Weigela - *Weigela florida* - SD, DEER, CL, S (18" Two 6'+), My Monet shown
- New Jersey Tea - *Ceanothus americanus* - SD, M, DEER, BW (2-3')
- Kalm's St. John's Wort - *Hypericum kalmianum* - SD, M, DRSH, DEER, BW, S (2-4')
- Smokebush - *Cotinus coggygia* - SD, DEER, R, CL (3-15')
- Bluebeard - *Caryopteris x clandonensis* - SD, DEER, R (2-3')
- Witchhazel - *Hamamelis virginiana* - SD, DRSH, M, CL, BW (up to 15')
- Juniper - *Juniperus* spp. - groundcover to small tree, SD, DEER, R, S

DRY SHADE

- Evaluate sun and shade patterns throughout the day, season and year
- Increase the light - hire a Certified Arborist to lift or thin the canopy
- Too much shade? Mulch or moss garden
- **Don't kill the trees for the flowers**
 - Don't add soil around the base of trees - as little as 1" can kill some species
 - Don't till too deep - majority of feeder roots in top 12"
- **Providing sufficient water the first two years is critical to success**

A FEW PERENNIALS

- Barrenwort - *Epimedium* - DRSH, DEER, R, BW (8-10")
- Hellebore - *Helleborus* hybrids - DRSH, DEER, R, S (moderately), BW, PPOY 2005 (12-15")
- Pigsqueak - *Bergenia* - DRSH, DEER?, R (12-15")
- Variegated Solomon's Seal - *Polygonatum odoratum* var. *pluriflorum* - DRSH, DEER, R, BW, PPOY 2013
- Sweet Woodruff - *Galium odoratum* - DRSH, DEER, R, BW (3-6")
- Siberian Bugloss - *Brunnera* - DRSH, DEER, R, BW (12-18"), Jack Frost PPOY 2012
- Canadian Ginger - *Asarum canadense* - DRSH, M, W, DEER, BW (6-9")
- Foamflower - *Tiarella* - DRSH, M, DEER, R (5-12")
- Bigroot Geranium - *Geranium macrorrhizum* - DRSH, DR, DEER, R, BW (12-18")
- Lilyturf - *Liriope* - DRSH, SD, DEER, R (8-12")
- Christmas Fern - *Polystichum acrostichoides* - DRSH, M, DEER, R (1-3')
- Pennsylvania Sedge - *Carex pensylvanica* - DRSH, M, W, DEER, R (6-12")

A FEW SHRUBS

- Spicebush - *Lindera benzoin* - DRSH, M, DEER, R, CL, BW (8-15")
- Coralberry - *Symphoricarpos* - DRSH, DR, M, DEER, CL, S (3-6')
- Bush Honeysuckle - *Diervilla* - SD, DRSH, DEER (2-3')
- Bottlebrush Buckeye - *Aesculus parviflora* - DRSH, M (8-12')
- Wafer-Ash - *Ptelea trifoliata* - SD, DRSH, R (15-20')
- Russian Cypress - *Microbiota decussata* - DRSH, M, DEER (6-12")

PLANTS FOR MOIST TO WET & FLOODED LOCATIONS

Increased number of heavy rainfall events

- Improve drainage
 - Soil amendments, raised beds, French drains
- Create a rain garden - divert roof runoff to plantings instead of storm sewers
- Managing mosquitoes in frequently flooded areas
 - Place Mosquito Dunk® on rebar post

A FEW PERENNIALS

Refer to lists of recommended rain garden plants

- Skunk Cabbage - *Symplocarpus foetidus* - M, W, DEER, R (2-3')
- Marsh Marigold - *Caltha palustris* - M, W, DEER, R, BW (12-18")
- Canadian Anemone - *Anemone canadensis* - M, W, DEER, R, CL (12-24")
- Bluestar - *Amsonia hubrichtii* - M, SD, DEER, R, PPOY 2011 (2-3')
- Goat's Beard - *Aruncus dioicus* - M, DEER, R, CL (3-6')
 - Misty Lace - leaf spot resistant
- False Spirea - *Astilbe* spp. - M, W, DEER, R, BW (1-4')

- Leopard Plant - *Ligularia dentata* - M, W, DEER, R, CL (3-5' in bloom)
 - Britt-Marie Crawford, The Rocket
- Rodger's Flower - *Rodgersia aesculifolia* - M, W, DEER, R (3-5' in bloom)
- Bugbane - *Actaea* - M, DEER, R, CL, BW, (4-7' in bloom)
 - *Actaea racemosa* - summer blooming
 - *Actaea ramosa* & *Actaea simplex* - fall blooming
- Swamp Milkweed - *Asclepias incarnata* - M, W, DEER, R (3-5')
- Queen of the Prairie - *Filipendula rubra* - M, DEER, R (4-5')
- Blazing Star - *Liatris pycnostachya* - M, DEER, CL (3-5')
- Cardinal Flower - *Lobelia cardinalis* - M, W, R (3-5')
- Giant Blue Lobelia - *Lobelia siphilitica* - M, W, SD, DEER (1-4')
- Swamp Rose Mallow - *Hibiscus moscheutos* - M, W, S (2-6')
 - Summerific® Series - more compact
- Ironweed - *Vernonia* spp. - M, W, DEER, R, CL (3-7')
 - Iron Butterfly - compact, fine foliage
- Joe Pye Weed - *Eutrochium maculatum* - M, W, DEER, BW (4-7')
- Turtlehead - *Chelone* - M, W, DEER, R (2-4')
- Ohio Goldenrod - *Solidago ohioensis* - M, DEER, CL (3' X 18")
- Palm Sedge - *Carex muskingumensis* - M, W, DEER, R (2-3')
 - Little Midge - compact, fine foliage
- *Carex oshimensis* 'Everillo' - M, W, DEER (12-18")
- Japanese Forest Grass - *Hakonechloa* - M, W, DEER, BW (12-18")
 - *Hakonechloa macra* 'Aureola' PPOY 2009
- Maidenhair Fern - *Adiantum pedatum* - M, SD, DEER, R, BW (1-3')

A FEW SHRUBS

- Serviceberry - *Amelanchier* spp. - M (3-25')
- Chokeberry - *Aronia* - M, W, SD, DRSH, CL (3-6')
- Red Twig Dogwood - *Cornus sericea* - M, W, DEER, CL (4-9')
- Elderberry - *Sambucus* spp. - M, W, CL (5-12')
- Summersweet - *Clethra alnifolia* - M, W, DEER, S (3-10')
- Virginia Sweetspire - *Itea virginica* - M, W, SD, DEER (2-8')
- Buttonbush - *Cephalanthus occidentalis* - M, W, SD, DEER (5-12')

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