It's our new reality—drought, wetness, heat, humidity. We ask the pros how to cope.

A mix of native plants and hardy nonnatives may be the best bet for gardens as weather becomes more extreme.

MARY LAHR SCHIER

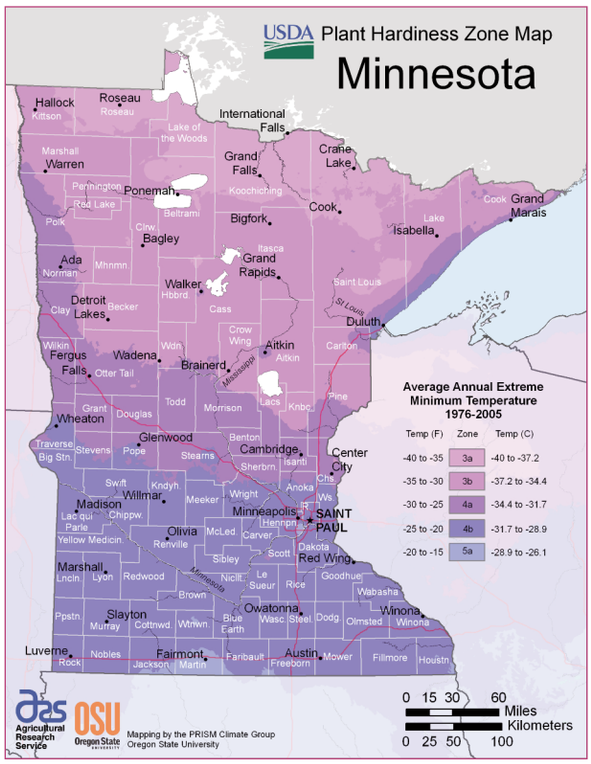
EXTREME Gardening

By Meleah Maynard

Extreme Gardening, that's the name of the reality TV show someone really ought to make about what it's like to be a northern gardener. We already endure short growing seasons while making sensible plant choices and coping with dreadful-sounding issues like frost heave and snow mold. Now, climate trends indicate that we must add excessive heat, humidity, drought and torrential "rain events" to our list of things to think about before putting trowel to dirt. Surely all of that adds up to enough drama to make a successful show.

As you no doubt have noticed, our climate is changing. Last year was the world's 10th warmest year since 1880, according to the U.S. National Oceanic and Atmospheric Administration. Closer to home, 2012 was the warmest on record for the United States and Minnesota's third warmest. But increasing average temperatures are not the only climate trend affecting our region. The average number of days with a high dew point is also increasing, and we are experiencing changes in the amount and type of rainfall, according to University of Minnesota Climatologist Mark Seeley.

Annual precipitation has increased over the last several decades and is expected to continue to do so. Heavy rain that sometimes leads to flooding is becoming more common. Yet between these events, we are experiencing long periods of drought. Complicating matters further is the rate at which changes are happening, Seeley says. It is possible temperatures may rise faster than we, or nature, can adapt.



Extreme Perennials

Many gardeners have commented that the upside of climate change is we can grow more varied plants. Not necessarily, says Mike Heger, owner of Ambergate Gardens in Chaska. "The media has played into the perception that we can try all of these USDA Zone 5 and 6 plants now," he says, "but the chances of gardeners getting burned at some point are high because it's not unusual for us to get a really cold, gut-check winter. Push the zone if you want to, but know that the risk hasn't really changed."

Heger suggests looking at plants that do well a little farther south, say Omaha or St. Louis. "Finding plants that can take extremes on both ends is really kind of a balancing act and we'll just have to see what works," he says, adding that some tough plant varieties, such as bishop's cap (*Mitella diphylla*) and Bowman's root (*Gillenia trifoliata*), may be difficult to find because they aren't part of commercial plant lines—yet.

He recommends integrating native plants with exotics that grow in similar conditions. "Natives are adapted to the conditions they're in," Heger says, "so before you buy, consider where they grow in the wild and whether your site offers those same things."

Water Wisely

Mary Meyer, a horticulture professor at the University of Minnesota, agrees that excitement over changes to the USDA Hardiness Zone map should be tempered with the ongoing reality of winter. She has focused on reducing her water use by growing drought-tolerant plants and conserving water with rain barrels and catchment systems. Meyer recommends grouping plants with similar water needs together. That way, you can water the bed with the queen of the prairie and turtlehead while letting the black-eyed Susan and blazing star fend for themselves.

Even drought-tolerant plants need water to get established. Meyer suggests giving new plants an inch of water each week, more if it's very hot and dry, for the first year or two. Well-established plants can often endure long periods of drought if you're willing to let them wither and go dormant as Meyer does. "The last two years, from August on, have been a frightening experience because I keep waiting for it to rain and it doesn't," Meyer recalls.

Dependable Shrubs

If you're looking for dependable shrubs that can take extreme weather, your best bet is to go with tried-and-true varieties, says University of Minnesota Extension Educator Kathy Zuzek. Many newer plants have been rushed to the market and have not been tested as long, as broadly or as well as they should have been, she says. "I wish we lived in a slower, more cautious world," says

Conserving water with rain barrels is one way to cope with drought.

Zuzek, who specializes in woody landscape plants. She recently has been conducting plant trials on shrubs for the North through the Earth-Kind® Environmental Stewardship Program with results to be released later this year.

Tough Trees

What gardeners really need in these changing times are eco-region maps, says Gary Johnson, professor of forestry at the University of Minnesota. The maps, which have been developed for many states and can be found online, delineate areas according to ecosystem and environmental resources. In addition to temperature, they supply information about precipitation, drought, wind, vegetation, geology, soils, wildlife and hydrology.

This information provides valuable clues as to which plants will grow well in an area. "If you know the original native vegetation, you've got a pretty good idea of what you can grow," he explains. This is particularly helpful when buying trees, an investment that can last centuries or just a few short years.

Even popular trees may not be good choices. Sugar maple (*Acer saccharum*), for example, is overplanted despite needing rich soil that holds moisture well. "It's not that you shouldn't buy maples," he says. "But if you plant one, remember they are woodland trees, so they need shelter and good soil. Don't put them in a parking lot or on a boulevard." Red oaks (*Quercus rubra*) can't tolerate poor drainage or harsh winds. But bur oak (*Quercus macrocarpa*) and shingle oak (*Quercus imbricaria*), which is native into northern Iowa, are highly adaptable and dependable.

Once planted, the best way to keep your tree healthy is to water it, especially during the first year. The amount you water is more important than frequency, says Johnson, who suggests filling a 5-gallon bucket and slowly pouring the water over the root area of a new tree every three or four days from planting until the ground freezes. Even after they're established, trees still need to be watered.

"Trees are living systems that depend on water to survive," Johnson says, adding that he pays no attention to weather reports. He just makes sure he keeps the top 6 to 8 inches of soil under all of his trees moist. He turns on hoses as needed, usually running them on a slow trickle from 6 p.m. to 10 p.m. To check the moisture, he uses a tiling probe purchased at a garden center, but an iron rod will also do the trick. "It's like checking a cake with a toothpick," he says. "If there's good moisture, the soil will stick to the probe." ng

Meleah Maynard is a writer and U of M Extension Master Gardener. She is co-author, with Jeff Gillman, of Decoding Gardening Advice: the Science Behind the 100 Most Common Recommendations, *(Timber Press, 2012).*

EXTREME Perennials

Plants that can handle heat, humidity and drought

'Blue Star' amsonia (*Amsonia hubrichtii* 'Blue Star')
Appalachian sedge (*Carex appalachia*)
Baptisia
Barren strawberry (*Waldsteinia fragarioides*)
Bishop's cap (*Mitella diphylla*)
Bigroot geranium (*Geranium macrorrhizum*)
Blue sedge (*Carex glauca*)
Bowman's root (*Gillenia trifoliata*)
Calico aster (*Aster lateriflorus*)
Coral bells (*Heuchera*)
Hellebore
Heart-leaved aster (*Symphotrichum cordifolium*)
Japanese aster 'Blue Star' (*Kalimeris incisa* 'Blue Star')
Male fern (*Dryopteris filix-mas*)
Pennsylvania sedge (*Carex pensylvanica*)
Siberian bugloss (*Brunnera macrophylla*)
Sky blue aster (*Aster oolentangiensis*)
Sweet woodruff (*Galium odoratum*)

Plants that can handle short-term standing water

Blue flag iris (*Iris versicolor*)
Boltonia
Bottle gentian (*Gentiana andrewsii*)
Culver's root (*Veronicastrum virginicum*)
Cutleaf coneflower (*Rudbeckia laciniata*)
Goatsbeard (*Aruncus dioicus*)
Hardy hibiscus (*Hibiscus moscheutos*)
Indian grass (*Sorghastrum nutans*)
Japanese primrose (*Primula Japonica*)
Ligularia
Masterwort (*Astrantia major*)
Queen of the prairie (*Filipendula rubra*)
Siberian iris (*Iris sibirica*)
Swamp milkweed (*Asclepias incarnata*)
Turtlehead (*Chelone lyonii* 'Hot Lips')

—*M.M.*

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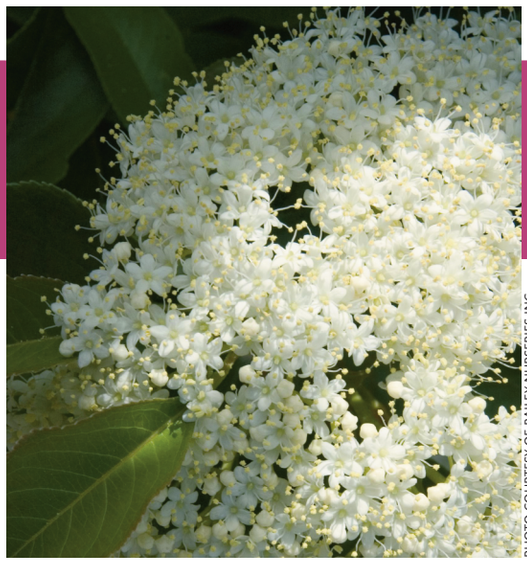

PHOTO COURTESY OF BAILEY NURSERIES INC

Nannyberry (*Viburnum lentago*)

PHOTO COURTESY OF BAILEY NURSERIES INC

Summersweet (*Clethra alnfolia* 'Hummingbird')

PHOTO COURTESY OF BAILEY NURSERIES INC

Black chokeberry (*Aronia melanocarpa var. elata*)

PHOTO COURTESY OF WALTERS GARDENS

Hibiscus moscheutos 'Pink Elephant'

PHOTO COURTSEY OF WALTERS GARDENS

Arkansas blue star (*Amsonia hubrichtii)*

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Winterberry (*Ilex verticillata*)

TOUGH-AS-NAILS Shrubs

Drought-tolerant shrubs

Alpine currant (*Ribes alpinium*)
Black chokeberry (*Aronia melanocarpa*)
Summersweet (*Clethra alnifolia*)
Lilac (*Syringa* spp.)
Forsythia (*Forsythia* spp.)
Gray dogwood (*Cornus racemosa*)
Mockorange (*Philadelphus coronarius*)
Nannyberry (*Viburnum lentago*)
Ninebark (*Physocarpus opulifolius*)
Panicle hydrangea (*Hydrangea paniculata*)
Potentilla (*Potentilla fruticosa*)
Siberian peashrub (*Caragana arborescens*)
Spirea
First Editions® Tiger Eyes™ sumac (*Rhus typhina* 'Bailtiger' PP16,185)

Shrubs that can take wet soil

American cranberry (*Vaccinium macrocarpon*)
American elder (*Sambucus canadensis*)
Arrowood viburnum (*Viburnum dentatum*)
Buttonbush (*Cephalanthus occidentalis*)
Coralberry (*Symphoricarpos albus*)
Leatherwood (*Dirca palustris*)
Pussy willow (*Salix discolor*)
Red-osier dogwood (*Cornus sericea*)
Spicebush (*Lindera benzoin*)
Swamp azalea (*Rhododendron viscosum*)
Winterberry (*Ilex verticillata*)
Witchhazel (*Hamamelis virginiana*)—*M.M.*

EXTREME Trees

Heat and drought tolerant

Amur maackia (*Maackia amurensis*)
Black Hill spruce (*Picea glauca* var. *densata*)
Flowering crabapples (*Malus*) (Johnson likes *Malus* 'Chestnut')
Hawthorn (*Crataegus* spp.)
Honeylocust, especially Northern Acclaim® (*Gleditsia triacanthos* 'Harve')
Hybrid elms (*Ulmus*), such as Princeton®, Discovery®, Accolade™ and 'Valley Forge'
Kentucky coffee tree (*Gymnocladus dioicus*)
Linden (*Tilia*)
Norway spruce (*Picea abies*) —*M.M.*