

Beating the heat

Breeders are developing plants to meet increased demand for heat-resistant, sun-tolerant perennials



Leucanthemum 'Sweet Daisy Birdy' is a first-year flowering perennial from Dümme Orange in Columbus, Ohio. PHOTO COURTESY OF DÜMMEN ORANGE.

BY EMILY HOARD

Hoping to meet an increased demand for heat-resistant, sun-tolerant perennials with strong blooming power, plant breeders have been trialing plants in a wide range of climates and growing conditions.

How it started and developed

The industry's focus on heat resilience has increased over the last decade and continues to grow, said Katie Miller, perennial product manager for Dümme Orange. She said growers and consumers enjoy the long-term color and texture of perennials in the garden because they last year-round.

"About 20 years ago, the design trends around xeriscaping and firewise landscape planning in the western United States created a focus on plants that are uniquely suited just to withstand heat as well as being drought tolerant, which really translates to survival for periods of time with little to no supplemental water," Miller said.

Firewise landscaping means creating a barrier of healthy green plants around a property in an area prone to wildfires.

Over time, breeders have been making improvements in plants that were already heat tolerant to begin with, said Katie Tamony, chief marketing officer at **Monrovia Nursery Company** in Dayton, Oregon.

"We're seeing *Agastache*, *Delosperma*, *Gaillardia*, *Verbena*, for example with significant improvements in



The *Kniphofia* PYROMANIA Collection adds drama to the landscape and does well in sunny, hot and dry conditions. PHOTO COURTESY OF PROVEN WINNERS

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bloom power, color, and overall heat tolerance,” Tamony said.

Climate connection

Matt Pielin, regional product manager at Walters Gardens in Zeeland, Michigan said he thinks shifting climate patterns have accelerated the work of breeding plants for heat and sun resistance.

“Prolonged heat, recurring drought and periodic water restrictions have made it increasingly important to develop plants that can thrive with less water and withstand higher temperatures,” Pielin said. “As a result, modern breeding efforts are placing greater emphasis on heat- and drought-tolerant perennials that deliver reliable performance.”

Miller said longevity is one of the factors consumers consider when purchasing plants.

“Part of the longevity comes from being able to withstand hot, cold, dry and critters,” Miller said. “Combined with national retailers seeking more uniform, nationally consistent offerings, there has been growing demand for perennials and annuals that perform reliably across regional climates.”

Breeders have been participating in trials in a wide range of climate conditions to meet this demand.

The USDA updated its cold hardiness zones map in 2023, reflecting rising average temperatures across the country. Miller said this update has led some growers and retailers in colder climate areas to add in plants that they would have previously avoided due to concerns over the plants’ survival in the winter.

“We’re also seeing the need for heat tolerance in cold hardy areas because of the fluctuations in temperature growing more as the climate changes,” Tamony said.

Regional differences

Tom Foley, Jr., director of product development at **Everde Growers**, said plants bred as heat-resistant perennials in the West need to withstand and thrive in full sun and dry conditions without burning.

“The Western sun is intense — bright, clear, and relentless compared to the Eastern U.S. or Europe,” Foley said.



Miner's Merlot (*Euphorbia* 'KM-MM024' PP32321) has burgundy foliage that holds color through summer heat. PHOTO COURTESY OF EVERDE GROWERS



Euphorbia Sahara™ 'Glacier Blue' (PP19027) has creamy white margins with gray-blue foliage; thrives in full sun and low-water conditions. PHOTO COURTESY OF EVERDE GROWERS



“Combine that with zero summer rainfall, and plants that can’t handle heat and drought will fail quickly.”

He said in Mediterranean climates like much of the West, perennials are thought of differently than in other places where plants die back in the winter and return in the spring. Instead, they are expected to provide year-round interest, as with grasses, woody sub-shrubs and evergreen species.

“In regions with hot, dry summers and mild, wet winters, homeowners, landscape architects, and contractors expect plants to look good all year,” Foley said. “Evergreen foliage becomes a priority, and the plant palette expands beyond traditional perennials.”

He added that other regions are looking to the West as a proving ground for resilient perennials.

“Western gardeners have long prioritized low-water plants, but now other regions are catching up,” Foley said. “Extreme weather—heat waves, droughts, and heavy rains—is becoming common globally.”

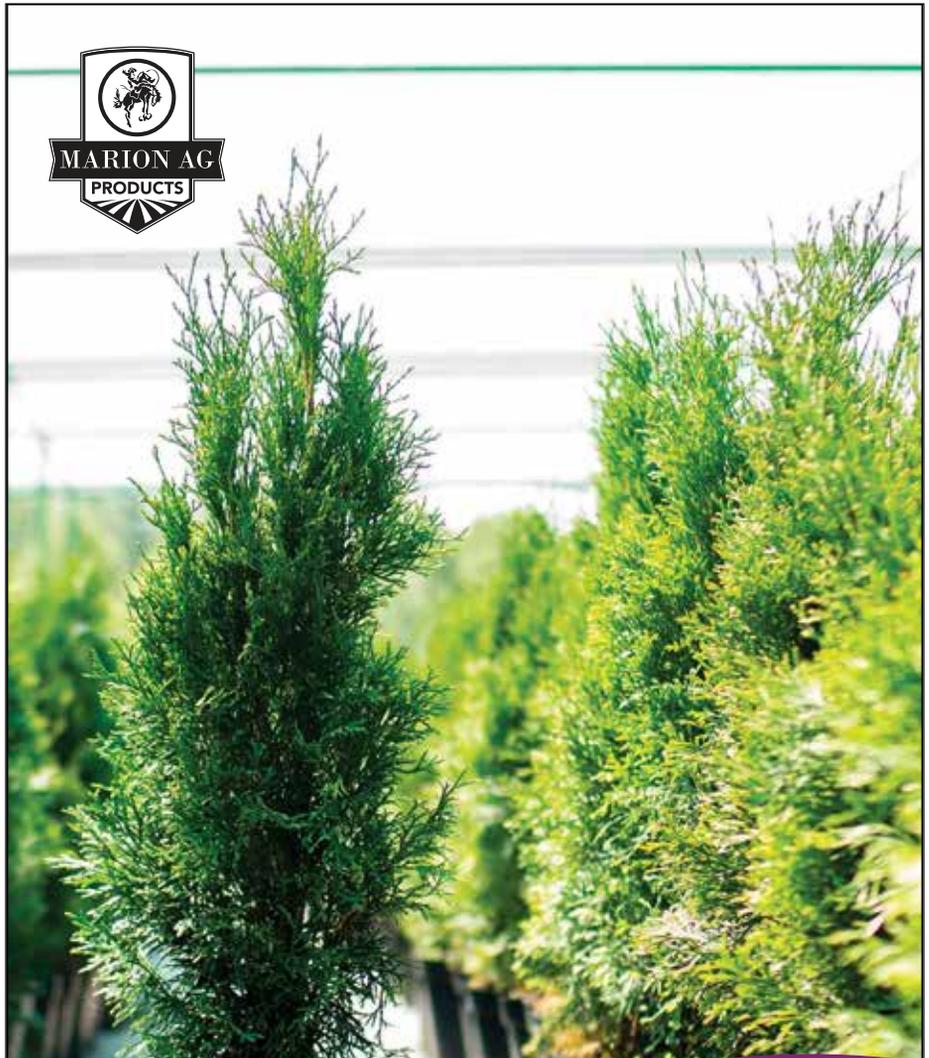
Tamony said she’s seen the need for heat-resistant perennials in the Rocky Mountain areas and even the Midwest as more regions undergo heat and drought in the summer.

Miller said some markets, such as in California, have adjusted the types of plants that are offered in the market.

“In the previous decade there have been significant attempts to reduce water needs and install plants that can thrive on minimal supplemental watering,” Miller said.

Trialing plants

Dümmen Orange in Columbus, Ohio, has 28 different genera within a diverse array of perennial breeding projects, Miller said. “Because of the extensive timeline for any given breeding project, the diversity of projects and focus areas, we depend on trialing for extreme heat and extreme cold hardiness across the majority of our crops,” Miller said. “Having crops that can offer broad appeal to most of the climate regions around the U.S. and Canada make it more successful in the long run.” >>



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Yucca 'Dragon Slayer' thrives where other perennials struggle. PHOTO COURTESY OF PROVEN WINNERS

It can take three to five years to select plants for a project and then an additional three to five years for the selections to be ready to launch commercially.

Dümmen Orange uses traditional cross breeding methods to select the best performing plants for extended flowering periods, as seen with their *Iberis sempervirens* 'White Shadow'. The company also breeds for first-year flowering perennials like Lavender La Diva Eternal Elegance (*Lavandula angustifolia*), *Phlox paniculata* 'Flame Ice Blue' and *Leucanthemum* 'Sweet Daisy Birdy'.

The first-year flowering plants do not need to go through the process of vernalization, which requires a cold period during the winter to trigger growth, flowering and seed production. Therefore, they tend to do well in hot climates.

Selected varieties then undergo tests for heat tolerance in southern Florida and Texas.

"Heat combined with humidity can have a very different impact on perennial performance compared to heat with minimal humidity," Miller said. Places with hot days and cold nights also have a different impact on plants than places with more consistent temperatures.

The perennials are planted in the ground and evaluated for two to three seasons during the trial.

"This allows for the best overview of survivability from one season to the next as well as performance since there is a difference between surviving and thriving," Miller said.

Stand-out varieties

Tamony said she's excited to see the development of more perennials with improved heat resistance, blooming power and sun-tolerant color.

One that stands out is Monrovia's Fiesta™ Lantana (*Lantana camara*) series.

"This is a sterile lantana that throws all its energy into bloom instead of seed, so you get a lantana that's just covered with bright happy blooms on a plant that stays nice and compact," Tamony said.

She's also a fan of the new *Heliopsis* 'Bacio Del Sole', which is a variety of a plant native to North America that is bred for heat tolerance and increased flowering. Monrovia's Hosta Sunhosta™ (*Hosta* 'HOST SUN 08') is also bred to perform well in heat and sun.

Consumers and contractors want

plants that establish themselves quickly, are easy to maintain and are visually stunning, said Foley

"Breeding priorities have shifted toward blooming power, heat resistance and sun tolerance," Foley said. "Customers want plants that deliver color from spring through fall with minimal care."

He said the *Agapanthus* Ever® series are game-changers for their long-lasting blooms and ability to thrive in heat and sun.

Dianella 'Clarity Blue' PP27348 is a grass-like perennial that Foley said is ideal in low-water landscapes.

Foley also highlighted several *Euphorbia* varieties that do well in full sun and low-water conditions, including *Euphorbia* Sahara™ 'Glacier Blue' (*E. x martinii* 'Glacier Blue' PP19027), Miner's Merlot (*E. x KM-MM024* PP32321), and Tiny Treasure (*E. x martinii* 'Waleuitr' PPAF).

Others that stood out to Foley are the *Penstemon* 'Dark Towers' PP20013 with its dark foliage and long-lasting lavender blooms, and *Salvia* 'Allen Chickering,' an evergreen sub-shrub with purple flowers and no need for summer irrigation.

Pielin said his company has some varieties that are perfectly suited to toler-



The Hibiscus Summerific Collection produces massive, tropical-looking flowers. While these plants need plenty of water, they love the sun and heat. PHOTO COURTESY OF PROVEN WINNERS

ate both sun and heat.

Pielin recommended the Proven Winners' *Agastache* hybrid Meant to Bee® (*Anise Hyssop*) collection.

"*Agastache* are well-adapted to thrive in dry soils and is right at home in rock gardens and xeric container plantings where it will attract hummingbirds, butterflies, and honeybees," Pielin said.

He said *Allium* plants are also easy-to-grow pollinator friendly plants that do well in full sun conditions.

Blooming power

Pielin said the Hibiscus Summerific Collection produces massive, tropical-looking flowers. While these plants need plenty of water, they love the sun and heat.

A more drought-tolerant perennial is *Hyssopus* 'Nectar Ninja', known for its fragrance and soft lavender-blue blooms.

"With a naturally rounded, compact habit, this drought-tolerant perennial thrives in full sun and average to poor soils, making it a versatile and resilient choice for modern landscapes," Pielin said.

The *Kniphofia* PYROMANIA Collection does well in sunny, hot and dry conditions.

"The spiky flowers and upright habit gives a very unique drama to your landscape, with rebloom extending the color late into the season," Pielin said. "*Kniphofia* is evergreen in mild regions and herbaceous in cooler zones."

Pielin said *Muhlenbergia capillaris* 'Candy Floss' blooms early, about a month before other selections.

"Its deep rose-pink plumes float above fine-textured foliage, creating a soft, airy effect that adds movement and color to the fall landscape," Pielin said.

Pielin also recommends *Rudbeckia*

'Treasure Trove' with its many golden star-shaped flowers that bloom for an extended time.

He added that *Yucca* 'Dragon Slayer' thrives where other perennials struggle.

"A perfectly rounded rosette of rigid, powdery blue, sword-like foliage delivers strong structure with little to no maintenance," Pielin said. "Exceptionally drought tolerant and highly resistant to deer and rabbits, this full-sun perennial is a powerhouse for hot, dry landscapes."

Conclusion

Miller said perennial breeding is about creating confidence for both growers and consumers.

"As the breeder, by selecting for plants that are more universal in their ability to withstand adverse conditions, consumers should ultimately experience greater long-term success in their gardens," Miller said.

Tamony said heat and drought tolerance is one of the most exciting trends she's seeing in plants because it really addresses the needs of the current market.

Foley said the future of perennials is about performance and sustainability.

"Plants that thrive in heat, conserve water and deliver season-long beauty aren't just trends—they're necessities," Foley said. "Breeders and growers who embrace these priorities will shape the landscapes of tomorrow." ©

Emily Hoard is an Oregon-based freelance journalist covering business, environmental and agricultural news. She has a background in community reporting and a master's degree in multimedia journalism. You can reach her at Hoarde123@Gmail.com

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