

# A Century of Grasses

*Rick Darke*

**“Of late years public taste has been turned to the advantageous effect of grasses in landscape gardening. Ferns had the credit of first winning attention from colour to form, and grasses next stepped in to confirm the preference for grace and elegance over gaudy colouring. . . .” Margaret Plues, *British Grasses* (1867)**

Though more than a century old, these lines capture much of the spirit behind the current fervor for ornamental grasses. Grasses are indeed enjoying a renaissance as gardeners learn to look beyond flower color to embrace the more subtle satisfactions of line, form, texture, and translucency. Lacking typical broad-petaled, brightly colored flowers, grasses derive much of their beauty from a unique set of attributes centered on line, light, and movement. Grasses provide a strong linear presence that results from the close parallel arrangement of so many narrow leaf blades. Their flowers are delicately translucent, particularly when dry, and they glow brilliantly when backlit or sidelit by the sun. Coaxed by the wind, the plumes move in and out of sun streams, creating magical flickering effects while the glossy foliage below alternates between translucency and shimmering reflection. Stirring gently in a summer breeze, dancing before an autumn storm, or flying in a spring gale, grasses mirror nature’s moods and bring a special dynamism to the garden. Modern designs feature these luminous qualities and movement.

Also responsible for the renewed interest in grasses is a dramatic increase in the number of species and varieties available to today’s gar-

dener. In the Victorian heyday of ornamental grasses, a limited few such as *Arundo*, *Cortaderia*, *Miscanthus*, and *Pennisetum* were repeatedly employed, most often as specimen curiosities set into broad lawns. Plant exploration, introduction, breeding, and selection in recent decades have enriched the modern palette of ornamental grasses so that it now includes myriad variations in size, form, texture, and color to suit a multitude of purposes in the garden.

The innovative nurseryman Karl Foerster (1874–1970) was an early and constant promoter of ornamental grasses, and his influence has been wide ranging. Foerster assembled plants from around the world and grew them for evaluation in his nursery in Potsdam-Bornim, Germany. By the 1940s his catalog offered more than one hundred varieties of ornamental grasses. Foerster also developed a more naturalistic style of garden design based on his nursery trials and his observation of grasses growing in association with other plants in native habitats. His 1957 book *Einzug der Gräser und Farne in die Gärten* (*Using Grasses and Ferns in the Garden*) provided a record of his experiences and is still one of the most compelling works on the subject. Foerster’s teachings have inspired two



*Ernst Pagels (seen here with horticulturist Anke Mattern), a student of Karl Foerster, has selected and introduced many spectacular early blooming cultivars of Miscanthus at his nursery in northwestern Germany.*

generations of German horticulturists. A superb feather-reed grass, *Calamagrostis x acutiflora* 'Karl Foerster', is named for him and is now common in gardens around the world.

Richard Simon of Maryland brought some of Foerster's influence and plant palette to North America in the late 1950s, when availability of ornamental grasses was at a particularly low ebb in the United States. With the help and encouragement of landscape architect Wolfgang Oehme and nurseryman Kurt Bluemel, both German-born advocates of Karl Foerster's philosophies, Simon began offering ornamental grasses through his Bluemount Nursery catalog. Bluemel's own Maryland nursery, founded in 1964, has since become the premier commercial introducer of grasses to the United States. Bluemel has worked to propagate, promote, and develop the market

for new grasses introduced by institutions such as the United States National Arboretum and Longwood Gardens. One such example is the feather-reed grass *Calamagrostis brachytricha* discovered by Richard Lighty while on a Longwood-sponsored plant collecting expedition to Korea in 1966. John Creech and Sylvester March of the National Arboretum introduced a number of ornamental grasses from Japan in the mid-1970s, including the variegated *Miscanthus* cultivars 'Cabaret', 'Cosmopolitan', and 'Morning Light', as well as the diminutive green-leaved *Miscanthus* 'Yaku Jima'. These mainstays of modern horticulture were first offered commercially by Kurt Bluemel, as was *Miscanthus transmorrisonensis*, introduced from Taiwan in 1979 by Paul Meyer of the University of Pennsylvania's Morris Arboretum. In the



Foliage detail of *Miscanthus sinensis* 'Cabaret', introduced from Japan by the U S National Arboretum

1980s a number of stellar introductions such as *Panicum virgatum* 'Heavy Metal' and *Miscanthus sinensis* 'Sarabande' originated from Bluemel. In recent years he has been an important conduit for selections from England such as *Phalaris arundinacea* 'Feeseey' and the spectacular early blooming *Miscanthus* cultivars developed by Ernst Pagels of Leer, Germany, including 'Graziella' and 'Malepartus'.

During the 1990s, many of the most important additions to the gardening world's palette of grasses have been native North American species and cultivars thereof. A fresh look at American grasslands by horticulturists from coast to coast is generating an abundance of widely adopted ornamentals. Native plant specialist Roger Raiche at the University of California's Berkeley Botanic Garden has woven many beautiful, drought-tolerant west-

ern natives such as *Festuca californica*, *Muhlenbergia rigens*, *Calamagrostis foliosa*, and *Carex spissa* into the garden's displays and has worked with nurseries to make them available. At the University of California's Santa Barbara Botanic Garden, Carol Bornstein's initiative to explore native grasses has resulted in fine introductions such as *Elymus condensatus* 'Canyon Prince'. Prairie Nursery in the Midwest has extolled the virtues of previously obscure but highly ornamental prairie species such as *Sporobolus heterolepis*. In the eastern states, Longwood Gardens' nursery trials of native American grasses have produced *Sorghastrum nutans* 'Sioux Blue'; Kurt Bluemel has developed *Panicum virgatum* 'Squaw' and 'Warrior'; and Bluemount Nursery has selected a giant, blue-leaved form of *Panicum virgatum* named 'Cloud Nine'.



*Muhlenbergia rigens* (deer grass), a stunning, little-known native of the western United States, is seen naturally sidelighted against boulders in Ojai, California.

The true grasses, which constitute the family Poaceae, are among the most highly evolved plants on the earth. It should be no wonder grasses are proving such a treasure trove of ornamentals: this truly cosmopolitan group of herbaceous annuals, perennials, and semi-woody plants includes over nine thousand species belonging to more than six hundred genera. Members of the grass family are found on all the continents in nearly all habitats. Grasses are part of almost all ecological formations and are the dominant vegetation in many, such as prairies, steppes, and savannas. Karl Foerster's characterization of grasses as "Mother Earth's hair" is not just fanciful: grasses are the principal component in more than one-fifth of the planet's vegetation cover. Immensely important economically, grasses

include all the cereal crops as well as sugarcane, bamboos, canes, and reeds. Herbaceous perennial grasses are unquestionably the most varied, versatile group for purposes of landscape design.

Perennial grasses are among the easiest to grow of all garden plants. Properly utilized, they can contribute to richly rewarding landscapes that are truly low in required maintenance. Grasses are adaptable to a wide range of soil, temperature, and moisture conditions and are relatively free of pests and diseases. In native habitats the greatest number of grasses prefer sunny sites, and this is also true for the majority of ornamental species in the garden. Sun-loving species often need two-thirds to full-day sun for best performance. Shading these grasses usually results in lax, elongated

growth and diminished bloom. Light requirements may vary considerably even among related cultivars, however. Most *Miscanthus* varieties demand considerable sun, yet the cultivar 'Purpurascens' stands upright and flowers well in half shade. Some grasses need both full sun and long growing seasons. For example, many *Miscanthus* fail to develop flowers in the short seasons of the northeastern United States and northern Europe. Again, proper choice of cultivars can alleviate this problem. Ernst Pagels developed his recent *Miscanthus* introductions (including 'Graziella', 'Malepartus', 'Kleine Fontäne') with the goal of producing plants that would flower in the relatively cool, short season of northwestern Germany. These plants are extremely useful in much of England and in cooler parts of the United States. Grasses imported from warm southern climates, on the other hand, sometimes succumb during winters in northern countries. The cause may be not the low temperatures in the new environment, but instead a lack of hardiness resulting from a weak sun in the growing season. For example, *Saccharum ravennae* (better known under its synonym, *Erianthus ravennae*) flowers well and easily tolerates winter lows of zero degrees Fahrenheit in parts of the United States that enjoy hot summers. In England it often does not bloom and may fail in winter.

Although fewer than sun-loving species, there are a number of grasses native to moist, shady woodlands and woodland edges. Some of these, such as *Calamagrostis brachytricha*, *Chasmanthium latifolium*, and *Spodiopogon sibiricus* are highly ornamental choices for the shade garden. Other ornamental species such as *Deschampsia flexuosa* and *Hystrix patula* grow happily in very dry shade, which is always a difficult niche to fill in the garden.

Grasses are tolerant of many different soil types. An inquiry into the particulars of a grass's native habitat often provides insights useful for siting plants in the garden. For example, grasses such as *Miscanthus* or *Spartina* that naturally inhabit wet areas tolerate low soil aeration. These species often are ideal

choices for poorly aerated garden soils such as heavy clays. Species found on infertile sands in the wild will obviously tolerate similar garden conditions; however, many also appreciate a rich garden loam. Some, such as the fescues, demand well-drained soils. These types will succumb to root rots in soils that stay moist, especially in winter. Although woodland natives respond particularly well to fertilization, it is generally unnecessary for most grasses except when they are planted in infertile sands. On rich loams and clays, fertilization can produce an overabundance of soft growth and may cause grasses to flop over.

The fibrous root systems of grasses are very efficient, making most grasses extremely drought tolerant. Once established, most ornamental grasses rarely need supplemental watering even in the driest summers. However, there is sometimes significant variation in the drought tolerance even among closely related cultivars. For example, the narrow-leaved *Miscanthus* 'Sarabande' will go through extended droughts with only minor tip burn. Broader-leaved *Miscanthus* 'Purpurascens' will scorch badly under the same conditions. Grasses roll the edges of their leaves inward in response to moisture stress, and this can be used as an indicator of the need for watering. Shade species such as *Chasmanthium* or *Spodiopogon* will perform well in full sun if given additional water in dry periods.

Grasses are generally free of pests and diseases. However, a mealybug, *Pilococcus miscanthi*, introduced to the United States in the late 1980s, now poses a serious threat to *Miscanthus*. Believed to be of Asian origin, the mealybug produces one generation per year, overwintering as adult females, with eggs hatching in spring. By fall the lower culms and insides of the leaf sheaths may be caked white with mealybugs. The mealybug attacks all parts of the plant including the roots, so aboveground mechanical or chemical methods are not sufficient for control. Drenching with systemics has proved effective; however, this is a management technique that needs to be used with the greatest caution. Preferably,

extreme care should be taken to obtain uninfected stock.

Herbaceous perennial grasses may be grouped loosely into two categories, warm season growers and cool season growers, based on the plants' physiologic cycles. Warm season grasses like it hot. They tend to sulk in cool spring weather, but once temperatures reach approximately 80 degrees Fahrenheit they begin a vigorous growth that continues unabated through summer. Most bloom toward summer's end and then die back to ground level with the onset of cold temperatures. In colder climates it is risky to divide or transplant warm season grasses in autumn; the plants' food reserves are lowest after flowering and seed set, the leaves are no longer photosynthesizing, and the roots are relatively inactive in winter. Therefore, warm season grasses are best divided or transplanted in spring after strong growth has resumed. Examples of warm season growers are *Miscanthus*, *Cortaderia*, *Pennisetum*, *Panicum*, and *Andropogon*.

Cool season grasses behave oppositely, growing best at temperatures below 80 degrees Fahrenheit. New foliage begins to grow in late winter or early spring, followed by spring or early summer flowers. Cool season growers sulk in summer: some simply interrupt growth, while others go into a full summer dormancy, dying to the ground. Growth resumes in autumn and often continues until winter temperatures drop below 40 degrees Fahrenheit. Cool season grasses may be divided or transplanted almost any time of year except during their hot summer lull. Examples are *Arrhenatherum*, most *Festuca* species, *Koeleria*, and *Calamagrostis x acutiflora*.

Although all grasses spread to some extent by rhizomes or stolons, for horticultural purposes they can be segregated into clumping and running types. Each type has its strengths for different design uses. The majority of perennial species—fescues, for example—produce only a modest annual increase in girth, effectively remaining in a clump or tuft. Since they stay in place, these types are rela-



Detail shows newly introduced *miscanthus mealybug*, *Pilococcus miscanthi*.

tively easy to control. On the other hand, they can result in high landscape maintenance if planted for groundcover since they will not fill in spaces where individual clumps have weakened or died.

The rhizomes of running types such as *Spartina pectinata* or *Glyceria maxima* are aggressively invasive and may travel nearly three feet in a single growing season. Restraints will be required if plants are commingled with less aggressive companions. However, these are ideal for groundcover use. Only a minority of perennial grasses have the potential to be seriously invasive. Nonetheless, this aspect should be given careful consideration in choosing plants, especially if the garden is located near a sensitive native plant community. The popular *Miscanthus sinensis*, for example, is rapidly naturalizing coastal areas and bottomlands in the mid-Atlantic and southeastern United States. The new early blooming cultivars, especially those from Pagels, will certainly accelerate the naturalization of this species. The potential for invasiveness of any particular grass varies from climate to climate. *Cortaderia jubata* is a serious problem in coastal California, but it poses no threat in the cold eastern states.

Grasses that self-sow prolifically can add substantially to maintenance chores in the garden. Fortunately they are few. Especially for mass plantings near vulnerable natural communities, grasses such as *Calamagrostis x acutiflora* 'Karl Foerster', which rarely if ever sets viable seed, are more responsible choices.

In 1909 the nursery catalog of Storrs & Harrison Company, Ohio, commented on the place of ornamental grasses in landscape design:

In the laying out of lawns and artistic gardens a few of the many beautiful hardy grasses should not be overlooked. Their stateliness, tropic luxuriance, and soft colors harmoniously punctuate the prevailing green, while their graceful, sinuous yielding to every wind gives animation to gardened landscapes too apt to look "fixed."

These lines acknowledge the subtle beauty of grasses and celebrate the movement they bring to the garden. However, they also stereotype grasses as curious afterthoughts useful chiefly for providing contrast with the ubiquitous lawn. Other contemporary writings and many of surprisingly more recent vintage suggest that grasses are best grouped by themselves in the garden. It is unfortunate that these two approaches have been so widely adopted since they rarely realize the potential for grasses' contribution to the landscape.

There is also a genuine concern that ornamental grasses will eventually suffer from overuse. In the American South, pampas grass has long since passed from favorite to cliché. More recently, *Miscanthus* and *Pennisetum* have become staples in the obligatory landscaping that tries to mitigate the monotony of commercial sites, but this trend may be forestalled as the wide diversity of grasses becomes better known.

The characteristic fine texture and linearity of grasses is most effective when visually balanced by other garden elements—annuals, biennials, perennials, shrubs, and trees—that contribute strong, solid forms to the composition. These might be companion plants with

bold foliage such as *Silphium terebinthinaceum*, *Rudbeckia maxima*, *Petasites*, or *Gunnera*. A number of coarse biennials such as *Verbascum bombyciferum*, *Angelica gigas*, and *Cynara cardunculus*, as well as annuals like *Ricinus* and *Helianthus* are also ideal. Large-flowered companions such as *Hemerocallis* and *Hibiscus* provide exciting contrast, as do the dark, massive trunks of trees.

An unusually versatile group, ornamental grasses can serve infinite capacities in the garden, limited only by the imagination of the designer. Native landscapes offer a rich source of inspiration. It takes little observation to know that grasses often occur naturally in huge sweeps and masses. In savannas and prairies, they are the form and foundation, the matrix of the landscape. Space permitting, many ornamental grasses are most effective when used in these ways in the garden. Meadow gardens, by their nature, should have a consistent framework of grasses through which flowering forbs make seasonal appearances. Prairie natives such as *Andropogon* and *Schizachyrium* are obvious choices for massed plantings, especially in naturalistic gardens. Coastal lowlands in Japan are a splendid sight when millions of native *Miscanthus* bloom shoulder to shoulder in autumn. A bit of this drama can be recreated in large gardens by planting *Miscanthus* in mass. In modest gardens, a sweep of refined grass such as *Calamagrostis x acutiflora* 'Karl Foerster' can create a mass effect without actually occupying so much area. This same grass and taller species such as *Miscanthus* 'Giganteus' or *Saccharum ravennae* can also be massed to enclose or form garden spaces. Most grasses need not be cut back until late winter. Screens and hedges will disappear temporarily after grasses are cut back, but most reappear quickly and are fully functional through summer, autumn, and most of winter.

In wild landscapes and in the garden, grasses are especially beautiful near water. Their fine foliage is stunning when mirrored in the broad surface of a dark pool or pond. Many grasses are native to wet habitats. Ornamental vari-



*Hakonechloa macra* 'Aureola' in a bonsai park near Tokyo. The Japanese have long grown grasses in containers.

ants of these species, such as *Glyceria maxima* 'Variegata' or *Spartina pectinata* 'Aureo-marginata', will thrive along pond edges and streambanks. Another winning combination borrowed from native landscapes is that of feathery grasses tumbling over massive boulders. Species such as *Panicum virgatum* and *Deschampsia cespitosa* literally produce clouds of the finest textured inflorescences. These grasses are dramatic when set among rocks or stones in the garden and can make a superb backdrop for garden sculpture. Garden pathways of stone offer similar contrast. They should be wide enough to allow grasses and other plants to spill over them. Grasses are also ideal for softening overly heavy architectural features in the garden.

Although they may pale in comparison with tropical flowers, grasses are hardly without

color. Modern cultivars offer summer foliage in countless shades of green as well as white (*Arrhenatherum* 'Variegatum'), yellow (*Milium effusum* 'Aureum'), blue (*Sorghastrum* 'Sioux Blue'), and red (*Imperata* 'Red Baron'). These are followed by an autumn array of golds (*Molinia* 'Skyracer'), burnt-umbers (*Sporobolus heterolepis*), and burgundies (*Panicum* 'Hänse Herms'). Indeed, grasses are unparalleled in their ability to enliven the autumn garden.

The rigors of winter fail to diminish the beauty of ornamental grasses. In the opinion of more than a few gardeners, this is their peak season. The splendid autumn tones of foliage and flowers weather gracefully to winter hues of chestnut, fawn, and russet. Frost often traces the graceful lines of grasses on winter mornings. Even in dormancy, many species



retain their shape and stature through sleet, snow, and freezing rain. Little bluestem, *Schizachyrium scoparium*, and broomsedge, *Andropogon virginicus*, paint broad golden-orange brushstrokes on winter's white canvas. Encrusted in ice, the spikelets of *Chasmanthium* become jewel-like. And the plumes of *Miscanthus* that were downy in summer become stunning filigrees in winter. Thoughtful placing of grasses so that they may be viewed from inside the house can be quite rewarding. Through a window, the movement of the grasses may catch the eye, providing a subtle connection and beckoning the gardener into the garden even in winter.

Many grasses make reasonably good groundcovers. Even though they are clumping types, the sturdy *Seslerias*, including *Sesleria caerulea*, *Sesleria autumnalis*, and *Sesleria nitida*, are low growing, long lived, and evergreen in milder climates. Prairie dropseed, *Sporobolus heterolepis*, is another clump-former suited to groundcover massing. Deep-rooted and extraordinarily drought tolerant once established, *Sporobolus* remains attractive for decades without the need for division or resetting, a claim that can be made for few perennial flowers. Spreading or running species such as *Elymus arenarius*, *Glyceria maxima* 'Variegata', and *Hakonechloa macra* often make good groundcovers. Flowering bulbs such as narcissus and tulips are happy to coexist with groundcover grasses. The bulbs usually flower earlier than the grasses and afterward their foliage is effectively masked by that of the grasses.

Japan has a long tradition of growing grasses in containers. The red-leaved *Imperata cylindrica* and variegated forms of *Hakonechloa macra* are rarely planted in Japanese landscapes, but for more than a hundred years they have been grown in decorative containers as companions to specimen bonsai. These and a host of other grasses deserve more frequent experimentation as container sub-

jects in Western gardens. Grasses with colored foliage such as *Helictotrichon sempervirens* provide steady, multiseason interest when planted in containers with annual flowers or foliage plants. Tender perennials such as *Rhynchelytrum repens*, *Pennisetum villosum*, or *Pennisetum setaceum* and its red-leaved forms may be enjoyed in containers outdoors during the warmer months. Also, many perennial grasses are sufficiently cold hardy to remain outdoors in unprotected containers through winter. *Calamagrostis x acutiflora* 'Karl Foerster', for example, has easily survived zero degrees Fahrenheit in a modest-sized concrete urn at Longwood Gardens.

Allowing for their seasonal ebb and flow, grasses can be stunning specimen focal points or accents. For example, the classic symmetry of a variegated giant reed, *Arundo donax* 'Variegata', might serve as a living sculpture. Many truly have multiple seasons of interest and can carry a design through much of the year. In these instances it is especially important to take advantage of natural backlighting or sidelighting to feature the grasses' luminous qualities.

The net result of this century of design development is that ornamental grasses are no longer stereotyped as curiosities that punctuate the lawn, and the myth that they should be relegated to segregated "grass garden" groupings has been dispelled. Rather, they have become integral to the well designed year-round garden. It seems certain that the unprecedented diversity now existing in ornamental grasses will firmly and permanently establish their place in the garden palette.

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This article is excerpted in part from the forthcoming *Royal Horticultural Society Manual of Grasses* Rick Darke is also author of *For Your Garden. Ornamental Grasses*, published in 1994 by Little, Brown and Company. He is Curator of Plants at Longwood Gardens in Kennett Square, Pennsylvania, where he has been responsible for the development of the ornamental grass display.