Ornamental Grasses — A New Wave in Floriculture Crops

Michigan State University trials determine which ornamental grasses make the grade.

By Art Cameron

Pennisetum setaaceum *is gaining popularity in mixed containers. (Photos courtesy of Art Cameron)*

BEST NATIVE GRASSES

Andropogon gerardii	Big bluestem
Bouteloua sp.	Side oats gramma
Carex muskingumensis	Palm sedge
Eragrostis spectabilis	Purple love grass
Hystrix patula	Bottlebrush grass
Luzula multiflora	Woodrush
Panicum virgatum	Switch grass
Schizachrium scoparium	Little bluestem
Sorghastrum nutans	Indian grass
Koeleria macrantha	Prairie June grass

TOUGH AS NAILS
(FOR COLD AND DRY — ZONE 4 HARDY)

Calamagrostis 'Karl Foerster'
Miscanthus giganteus
Miscanthus 'Silberfeder'
Miscanthus 'Strictus'
Molinia 'Skyracer'
Panicum 'Heavy Metal', others
Panicum 'Cloud Nine'
Phalaris — Ribbon grass
Sorghastrum nutans — Indian grass

The popularity of ornamental grasses has soared in recent years. In the garden, they can be bold, natural, textural and graceful — truly adding a "new" look to mixed containers, gardens and landscapes. In ever increasing numbers, they are being produced and sold with annuals and perennials. Many bedding plant growers would like to enter the market but are often unfamiliar with the plant material and have limited access to published information. We are getting more requests for information on selection, propagation, production and especially timing so growers can efficiently enter this rapidly expanding market. Growers are interested in learning more about small grasses that will work well in containers or even with bedding plants. At the same time, they are attracted to larger grasses and have requested more information on those with excellent ornamental characters combined with good garden performance. The fact is that production research efforts on ornamental grasses have been few, and published information is limited.

At Michigan State University, we have trialed landscape performance of ornamental grasses for over 20 years. We now have several gardens that focus specifically on ornamental grasses. The popularity of these gardens and associated programs attests to the increased awareness by gardeners of all experiences. We currently are testing about 100 selections for hardiness in Zone 5. For information on Zone 4 hardiness, growers should look to the trials in Minnesota conducted by Mary Hockenberry Meyer, who has had a long-term interest in ornamental grass performance in Northern climates. Trials in Michigan and Minnesota include small and large ornamental grasses, though traditionally, the focus has been more on landscape performance. In the past couple of years, we initiated a research program to investigate selection, propagation, production and scheduling of ornamental grasses for greenhouse growers. Our objectives are to

Figure 1. Short perennial ornamental grasses; most are appropriate for containers and as bedding plants.

TENDER SHORT PERENNIAL ORNAMENTAL GRASSES	
Carex buchananii *Carex flagellifera* *Carex comans* (Brown New Zealand sedges)	Can be interesting accent plant in container or garden. Many can overwinter even in Zone 5.
Lagurus ovatus (Bunny tail grass)	This true annual can be grown from seed and as a potted flowering plant. An old crop, but we are seeing a resurgence in interest.
Melica sp. (Hairy melic)	Wild look for a container. Interesting new introduction to the annual garden scene — can overwinter in Zone 5 on occasion.
Nassella tenuissima aka *Stipa tenuissima* (Mexican feather grass)	A great plant from the West, it can spread by seed. Can overwinter in Michigan but generally much better in warmer climates. A wonderful airy look and finishes well in a 5-inch container.
Pennisetum setaceum 'Rubrum' (Purple fountain grass)	A real winner in Michigan, this has revolutionized our thinking about tender perennials. Must be propagated by division or cuttings. Great in a 5-inch. Needs extra light to produce anthocyanins to turn red.
Pennisetum sp. (Purple millet)	This newcomer from seed is slow, likes warm temperatures and is very impressive in photos but does not always live up to expectations. Seed is F1; F2s are green.
Rhynchelytrum nerviglume (Melinis) (Ruby grass)	This common weed in some areas of the tropics will sometimes cover acres. It has nice red flowers and can be impressive as a bedding plant or in mixed containers.
Saccharum officinarum 'Pele's Smoke' (Sugarcane)	Sugarcane can grow tall in one summer. This tender perennial has not been used much but can be a show stopper in late summer — obviously killed back by frost in MSU trial gardens. Pele's Smoke has dark leaves and is very ornamental.
Isolepis cernua (Fiber optics grass)	Likes lots of moisture, looks great in a pot and will sell on "pot" appeal. Garden performance is not impressive. It's better used in water features, even partially submerged.
SMALL PERENNIAL GRASSES – MOSTLY PERENNIAL IN ZONE 5.	
Acorus gramineus (Sweet flag)	Nice in a container but not impressive as a landscape plant, as it prefers a moist area. Not a true grass, but its flat leaf can be colorful.
Briza media (Quaking grass)	Dried fruits are ornamental, but it has limited use in landscape since it's rather small. Sometimes used in containers.
Calamagrostis 'Karl Foerster' 'Overdam', 'Avalanche' (Feather reed grass)	Nice landscape plants rather tall for containers. Karl Foerster is the best of the best — sterile so no chance of seeding out. Overdam and Avalanche are variegated and showy but not as vigorous.
Carex morrowii aureovariegata (Golden variegated Japanese sedge)	Prefers some moisture and a bit of shade for best performance. It looks nice in containers or in the landscape.
Chasmanthium latifolium (Northern sea oats)	Great as a cut flower. Propagated from seeds, it has good container performance the first year.
Eragrostis sp. (Chinese love grass)	Nice fill look for containers. Basically a weed in many parts of the country.
Festuca 'Elijah Blue' (Blue fescue)	Probably the best festuca for Northern and Eastern U.S. Resistant to rust, thus more tolerant of high humidity.
Hakonechloa macra (Japanese grass)	This nice container plant can be a slow grower. Likes some shade and a bit of moisture for best results. Did not like to be held at low temperatures and grew best with long days and supplemental light — at least in the winter months.
Imperata 'Red Baron' (Blood grass)	For Northern states only. Actually reverts to green and is a pest in Southeastern U.S. In fact, Florida considers it "one of the world's worst weeds." In Northern U.S. it works hard to survive winter. Still one of the nicer short grasses for red foliage.
Juncus effusus (Rush)	A simple grass-like plant with round leaves (rushes are round, sedges have edges) that is often used in water features but can be added to mixed containers for a bit of texture.
Molinia caerulea 'Variegata' (Variegated purple moor grass)	Simple but dependable, particularly in the garden. Nice yellow foliage and airy flowers to 2 feet. Can work in containers.
Ophiopogon planiscapus 'Arabicus' (Black Mondo grass)	Struggled a bit in containers; growth can be slow. Probably has a cold requirement, but we have not yet conducted systematic studies. Often listed as Zone 6 but has overwintered in my garden for several years.
Pennisetum 'Little Bunny' (Dwarf fountain grass)	Only grows to about 15 inches — not especially effective in containers. Hardy to Zone 5.
Pennisetum 'Hameln' (Hardy fountain grass)	Slightly taller, still a clone and usually hardy in Zone 5. It likes good drainage and is probably too tall for smaller combination containers.
Phalaris arundinacea (Ribbon grass)	A very aggressive grass that spreads readily by underground runners; easily becomes a pest in many gardens. It can work in containers. In the garden best in dry shade or other difficult site.

develop innovative propagation techniques, particularly cutting propagation, determine photoperiod and vernalization requirements and develop greenhouse production schedules for a wide range of ornamental grasses and grass-like plants.

SMALL GRASSES

Short grasses, tender and hardy, are rapidly becoming important greenhouse crops. There are numerous short grasses worthy of production, and many are perhaps best suited for use in containers. They readily add texture and interest to containers. In Figure 1, left, some of the more popular short grasses are listed with short descriptions on performance. Some are hardy to Zone 3; some are tender; and a few are true annuals. Several, such as juncus, are not true grasses but are often lumped with grasses based on texture and form. Others, such as *Hordeum jubatum* (foxtail grass) and *Imperata cylindrica* (blood grass), can be very ornamental but are considered pests in certain parts of the country.

Purple fountain grass (*Pennisetum setaceum* 'Rubrum') is a tender perennial that has taken the Northern states by storm the past several years. In fact, purple fountain grass was hardly grown in Northern states until a few years ago. Now, Michigan growers alone produce hundreds of thousands in containers each ➧

Panicum.

year. Purple fountain grass is sterile and must be produced vegetatively, often by divisions. There are issues relative to stock plant management, chilling injury and inadequate red in low light conditions. Still, the fantastic ornamental display combines well for container use and in the landscape.

Some valuable short grasses, such as *Hakonochloa macra*, have a reputation for being difficult and slow to grow. We have found that Hakonochloa grows best under long-day photoperiods without an exposure to cold. The key appears to be constant photoperiod and temperature control (see Figure 3, right). Even from a small division, a reasonable plant can be produced in six weeks.

LARGE GRASSES

There is no doubt that I personally like grasses big, bold and beautiful. This includes many selections of miscanthus, *Panicum virgatum* (switch grass), *Pennisetum alopecuroides* (fountain grass) and the popular calamagrostis 'Karl Foerster'. However, despite their showy

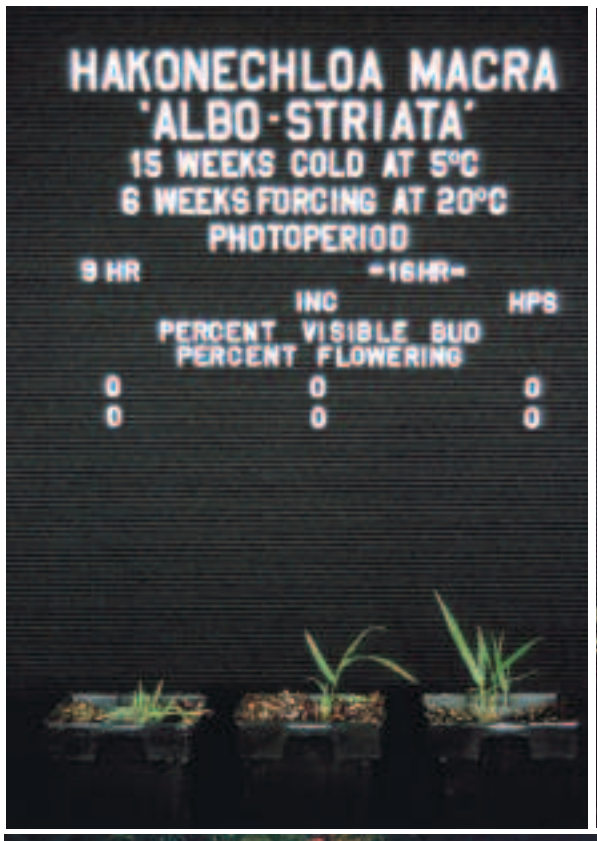
Figure 2. Hardy grasses and their descriptions, height and zones.

ORNAMENTAL GRASS	DESCRIPTION	HEIGHT IN FLOWER (INCHES)	ZONE
Calamagrostis x acutiflora 'Karl Foerster' (Feather Reedgrass)	A bit shorter than some of the other grasses, but it flowers in June and holds flowers until you prune them down the following spring. Vertical habit, green leaves, golden flowers. Does great in broad masses. Needs very little care and is easy to divide.	4-5	4-9
Miscanthus sinensis (Silver grass)	Miscanthus is a diverse group of plants with excellent ornamental characteristics. Many have now proven to be promiscuous and will cross pollinate to make viable seed that can escape into native areas. They are self incompatible. Generally produced by division, we are investigating cutting propagation techniques.	varies	varies
Miscanthus sinensis 'Morning Light'	Small-leaved variegated silver grass. Nice in mass or specimen. Very showy in the garden; foliage is the great ornamental part of this plant though it will bloom in the fall. Foliage held all winter. Shorter than some other miscanthus.	4-5	4-9
Miscanthus sinensis 'Purpurascens' (Flame Grass)	Reddish, attractive foliage with silver flowers that show in autumn. Note compact size. Great in the garden but not in a container.	5-6	4-9
Miscanthus sinensis 'Silberfeder' (Silver Feather)	Foliage not particularly ornamental; huge flowers, which appear in late August in Michigan. This is one of the dominant specimens in our ornamental grass garden. Easy to grow and very hardy.	8-10	4-9
Miscanthus sinensis 'Strictus' 'Zebrinus' (Zebra grass)	Big, bold, beautiful! Both have great zebra-like striping. Showy from June to the end of the year. Flowers emerge in September. The foliage and flowers make it through Michigan winters with little trouble. Fantastic winter interest.	5-7	5-9
Miscanthus sinensis 'Variegatus' (Silver Grass)	Looks good in the garden from spring to spring. The variegated foliage is bright. Although there are new variegated miscanthus on the market, the original is still well worth planting.	6-9	5-9
Molinia litoralis 'Skyracer' 'Windspiel' (Tall purple moor grass)	Throws big, airy flower heads, blooming in early August. A great flowering grass. Foliage only grows to about 3 feet. Winter interest is limited in Michigan since the flowers fall down in first snow.	4-7	5-8
Panicum virgatum 'Shenendoah' (Switch grass)	Switch grasses perform well throughout most of the U.S. 'Shenendoah' and 'Heavy Metal' make excellent landscape plants. Horticultural selections spread slowly as clumps in the garden.	3-6	2-9
Pennisetum alopecuroides 'Hameln' 'Little Bunny' (Dwarf Fountain Grass)	These dwarf forms of *P. alopecuroides* complement colorful annuals while providing a pleasing texture. They bloom in August. Finer textured leaves. Little Bunny is shorter but does well even the first year. Limited winter interest. Some pennisetums produce seed that can spread the plant prolifically, but these two selections are not a problem in that regard.	1-3	5-9

appearances in the garden, these same grasses typically look poor in containers. Little is known about techniques for optimizing starting material and subsequent flowering requirements. Almost all of the superior ornamental grasses are propagated vegetatively — a relatively slow and cumbersome process. Crown division, the principle method of multiplication, is labor intensive and must be properly timed for best results. Large amounts of space and labor must be devoted to stock plants, which should be dug and divided each season for best results. Cutting propagation of some grasses such as purple fountain grass has been demonstrated, though few growers have adopted this technique due to inconsistent results during commercial implementation.

We have begun initial screening for growth and developmental responses to photoperiod and cold and light quantity, and we have preliminary data for about 20 ornamental grasses. All ornamental grasses tested, including *Miscanthus sinensis*, *Panicum virgatum*, helictotrichon and *Pennisetum alopecuroides* flowered only under long days. While most selections appeared to have an obligate cold requirement, there were some ➧

Figure 3. Research showed cold treatments (left) slowed growth compared to no cold treatment (right).



Miscanthus.

Late Bonzi Drench on Poinsettias, Part II

Last month's Bonzi Tip contained information on rates for the late stage Bonzi drenches and covered the importance of the crop having reached a desired stage of development for the successful use of this application technique.

The drench volume is important, and information is given on the Bonzi label to guide you in this area. The drench can be applied by hand or by using dosing equipment for very accurate measurement. For convenience, a drench is frequently

applied through a hose or drip system with an injector. The Bonzi label also contains information on other factors important in drench applications.

A common situation after the middle of October is for the crop to become too tall before bract development meets the criteria for a safe late drench application. Any growth regulator application that stops elongation is likely to reduce bract size in this situation, but a Bonzi drench will have less effect on bract development than will sprays of any product. The 'Prestige' plant pictured was growing about 1 inch per week and was drenched on October 30, 2003, which was before any bract color had started. The picture was taken four weeks later and the crop had grown 1 inch since the drench.

Plant growth rates in late October and November, when the drench is applied, are influenced by three factors: temperature, how much previous growth regula-

Bonzi
Tip of the Month

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Top: *Calamagrostis.* ***Bottom:*** *Hakonechloa.*

notable exceptions, including *Panicum virgatum* and *Hakonochloa macra*. While this data provides a useful foundation, there are still many questions that remain unanswered before it can be utilized to construct more efficient production protocols. These are issues that we hope to address in our research efforts in the next several years.

NEW WAVE IN FLORICULTURE

It seems that American gardeners are more knowledgeable than ever, and with this knowledge comes an ever-increasing appetite for new plant material. Ornamental grasses offer a new look and in turn a great opportunity for gardeners of all experiences — novices and pros alike. The smaller grasses can look great in containers and can often sell themselves when grown well. The larger grasses are proven performers in the landscape and are in great demand. Still, we have a long way to go to streamline propagation and optimize production techniques. I have few doubts that we will see many changes in the future in the way these plants are produced and marketed. As an ornamental grass enthusiast, I look forward to seeing even more of these great plants in the landscape.

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