

Growing Cool Perennials

Growing perennials in cool conditions is becoming more inviting to growers as energy prices continue to climb. Michigan State University researchers detail the culture for some of the best cool-season perennials.

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Some perennials just prefer life on the cool side. Luckily, many of these are great garden plants that also tolerate warmer summer temperatures. This can be of interest to Northern growers as energy prices continue to move skyward. There are many common and uncommon perennials to choose from including primulas, leopard's bane, English daisies and lupines. In this article, we will focus on armeria, iberis and corydalis.

These herbaceous perennials can all be produced on the cool side. Armeria and iberis are the tried and true in this group, while corydalis is an example of an up-and-coming genus. Corydalis is available in yellows, blues and even reds, and it merits more attention among the general gardening public.

Armeria maritima

Armeria maritima simply loves it cool. Still, it does amazingly well in Southern gardens. Plants bloom for several weeks from spring into early summer in cool climates, and the spent flower heads can remain attractive for several additional weeks. Commonly called sea thrifts, its hardiness is recommended for Zones 4-9. Cute in contain-

ers, armeria has long been produced as a potted flowering crop. In the garden, it can be grown en masse or combined with some of the brown-leaved sedges like carex 'Toffee Twist'. A tough plant in the garden, it prefers well-drained soils and thrives in rock gardens.

Armeria maritima is day neutral. It does not require cold treatment for flowering but benefits from it with increased flower number and decreased time to flower when transferred to warmer temperatures. In our trials, we typically cool plants at 41° F, and the indication is armeria continues to grow and even form flower buds at this temperature. We have found that increasing plant size in the fall before the onset of cold increases final plant size and flower number the following spring.

Most *Armeria maritima* selections are seed propagated, and in some cases, we have observed considerable variation. With a bit of selection, it might be possible to develop strains with interesting flowering characteristics. Since vegetative propagation is only by division, the use of clones by commercial growers has been limited.

There has not been an abundance of new cultivars throughout the last several years, but armeria is readily recognized and grown by the gardening public. While the choices are few for the

committed plant geeks, Figure 1 (below) shows several of the interesting *Armeria maritima* cultivars currently on the market.

Iberis sempervirens

White, bright and cheery when it blooms in the spring, *Iberis sempervirens* is another cool-season performer. Commonly called candytuft, it is hardy in Zones 3-9. All iberis prefer great drainage and generally do best in sunnier garden locations. Evergreen in Southern gardens, it tends to die back with extreme cold in the far north. Outdoors in Southern gardens, Allan Armitage, University of Georgia, recommends iberis be cut severely to reduce leggy tendencies. In Northern gardens, we often shear lightly, if at all, depending on the rate of growth.

The straight species and several cultivars, such as 'Snowflake' and 'Purity', are produced from seed, though they are not completely true to type. They can also be somewhat tricky to produce from cuttings. Perhaps this has limited the popularity of some of the clonal selections.

All of the cultivars we tested have an obligate cold requirement and are day neutral for flower induction. 'Alexander's White' can remain green for a year or longer when grown without exposure to cold. We recommend vernalization for six weeks at 41° F. Iberis flower quickly (3-4 weeks) after ▶



Armeria 'Cottontail' (Photos: Art Cameron)

Armeria maritima Cultivars

'Cottontail'	This dwarf blooms compact and freely with white flowers. It is most appropriate for a small container. Final plant height in flower is only 3-4 inches. In our experience, 'Cottontail' flowered in 4-5 weeks at 68° F and in 10 weeks at 41° F.
'Rubrifolia'	The dark foliage on this cultivar is a great contrast to the pink flowers.
'Nifty Thrifty'	This is a dwarf novelty with yellow edges on the leaves. It is nice for containers.
'Bloodstone'	Thought to be a hybrid with darker red flowers and long bloom times, 'Bloodstone' did not readily rebloom for us. We conducted greenhouse trials with this cultivar and gave small plants zero and 15 weeks of vernalization. We observed very inconsistent flowering. It likely needs additional bulking before vernalization.
Armeria pseudarmeria Joystick series	These selections bloom the first year from seed. They are native to coastal Portugal and come in lilac, red and white with larger flowers.

Figure 1. Shown here are some of the currently available Armeria maritima cultivars.

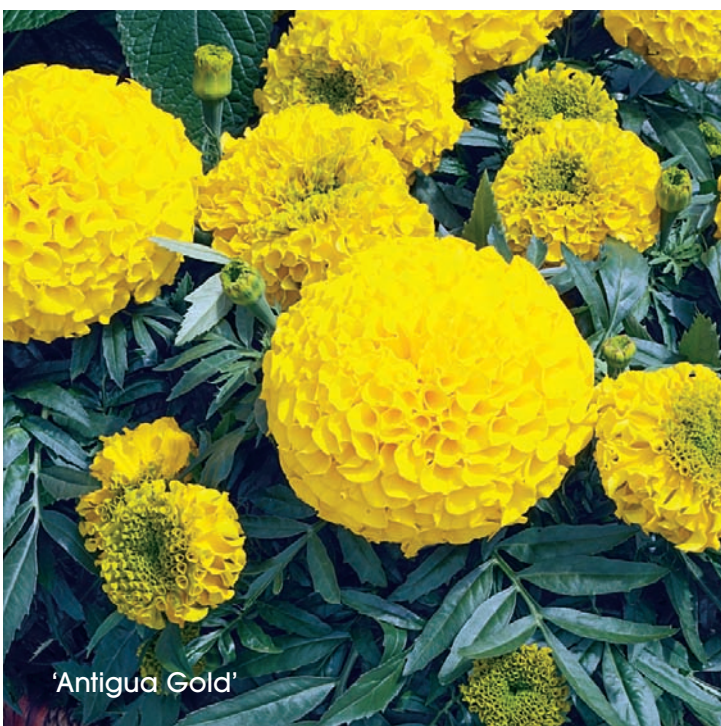
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Top: Iberis. Bottom: Shown here are non-vernalized Iberis held at a constant 68° F for eight weeks (top left) and three weeks (bottom left). On the right are iberis vernalized for eight weeks at 41° F (top) and three weeks at 68° F (bottom).

vernalization, and it is best to bulk plants in the fall. The longer they are kept at low temperatures, the quicker they will flower when returned to warmer temperatures. Growing cool can enhance flower number and overall plant quality. We have not yet conducted greenhouse trials on the “repeat bloomers” in Figure 2 (below) and still need to learn if they have an obligate cold requirement.

There has not been a great deal of action with the iberis genus with breeders. Most of the seedling lines and clones have been around for a while, and it seems about time for a breakthrough. It would seem that repeat bloomers would have a good potential for future breeding. Current repeat

bloomers do not always consistently produce much of a flower show the second or third time. Dave MacKenzie at Hortech Nursery, Spring Lake, Mich., has noted that the repeat bloomers currently on the market are more susceptible to crown rot. It seems that more can be done to market the clones if growers can get a handle on rapid propagation techniques. Some of the more popular cultivars are described in Figure 2 (below).

Corydalis lutea

The genus *corydalis* is not particularly well known by gardeners, yet it is actually quite diverse with more than 300 species native to almost all

Iberis sempervirens Cultivars

Standard cultivars

'Alexander's White'	This cultivar has a compact habit and blooms early. It has performed well enough in MSU trials.
'Purity'	This 8-inch, pure-white-flowered cultivar has a long blooming season and produces plenty of flowers.
'Snowflake'	In our trials, this seed-propagated line has a juvenility period until about 50 leaves have formed.

Repeat Bloomers

'October Glory', 'Autumn Beauty' and 'Autumn Snow'	These have the capacity to bloom profusely in the spring, followed by a second bloom in July or August and potentially even a third in October. It is surprising these lines are not more popular, but some gardeners have had limited success and plants can have disease issues.
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Dwarf (less than 6 inches)

'Little Gem' (Weisser Zwerg), 'Compacta', 'Snow Cushion'	These cultivars have potential as potted flowering plants or in a rock garden.
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Super dwarf (less than 2 inches)

'Minima'	Also check other species including <i>Iberis sayana</i> and <i>Iberis pygmaea</i>
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Figure 2. These are some of the more popular *Iberis sempervirens* currently available.

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Corydalis lutea Cultivars

Yellow Corydalis

<i>Corydalis cheilanthifolia</i>	Native to China, this cultivar is larger than <i>Corydalis lutea</i> and does well in dry shade. (listed as Zone 6 though it overwinters in mid Michigan)
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Blue

'China Blue'	In MSU's trials, the plants were not as robust as other tested selections, though the flowers were a beautiful blue and lightly fragrant. Growing cool is recommended for bulking and prefinishing. It grew best with higher light levels. Some Northern growers have had difficulty overwintering this selection outdoors, which could be related to drainage. (Zone 5)
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'Blue Panda'	This was the first blue cultivar released (Zone 5). <i>Corydalis flexuosa</i> 'Golden Panda' (Zone 6), 'Purple Leaf' and 'Rainer Blue' (Zone 7) and <i>Corydalis curviflora</i> 'Blue Heron' (Zone 7) have not yet tested in the greenhouse.
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Purple

'Blackberry Wine'	In our trials, this fragrant selection flowered best with higher light levels. We recommend at least 10 mol·m ⁻² ·d ⁻¹ . After vernalization, plants flowered in 3-4 weeks at 68° F. In the garden, 'Blackberry Wine' tends to go summer dormant. (Zone 5)
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Reddish

<i>Corydalis solida</i>	Some selections are quite red and can be very striking bulbous perennials. We have not tested this cultivar (listed as Zones 4-8).
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Figure 3. These are some of the more popular *Corydalis lutea* currently available.

northern temperate regions of the world and extending to South Africa. The yellow corydalis is hardy to USDA Zone 5. Related to bleeding hearts, *Corydalis lutea* is sometimes listed as hardy only to Zone 6, though it has survived and thrived in at least one Zone 5 Michigan garden for nearly 20 years.

Many members of this genus have great container appeal, and they all tend to appreciate cool growing temperatures. Tough, hardy and with a long bloom period, *Corydalis lutea* should be more common in gardens. It does have a well-deserved reputation for seeding around a garden, though this has not been much of a problem in our relatively dry Northern soils. *Corydalis lutea* is adaptable to shady locations, though in our studies this plant produced more flowers under high light intensities. It does not particularly like hot summer temperatures and will do better in a cooler shady location in Southern states. Cool production temperatures will lead to excellent plant quality.

Despite self-sowing issues in many gardens, *Corydalis lutea* seed has a short shelf life and has proven difficult for many commercial growers. Seed should be stored cool and protected from drying for best results. In fact, it is best to collect and germinate seed immediately. This has limited commercial production of this plant.

For flower induction, we have found that seedlings benefit from a cold treatment. Without cold, plants flowered quickest under long-day photoperiods (e.g., night interruption), while after cold they appeared to be day neutral. *Corydalis lutea* and other species we have tested perform best at cool temperatures and high light levels. We recommend a minimum daily light integral of 10 mol·m⁻²·d⁻¹. *Corydalis* will continue to grow and develop even at low temperatures. Plants flower relatively quickly after cold but continue to flower for the entire growing season in the garden.

The corydalis genus includes a number of rare, unusual and beautiful selections that



Corydalis lutea

come in great shades of blue and red, while others are fragrant (see Figure 3, above). Unfortunately for growers in Northern climates, many are listed as hardy only to Zones 6 and 7, though further testing may push the limits northward. Still, some are great in containers and may serve as useful "temperennials" — perennials used as annuals. Many corydalis selections go dormant in the late summer months, especially if drought stressed. **GPN**

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