cut flowers

PanAmerican Seed®
Confidence in Cuts
Respected for over 50 years for our innovative breeding and ability to consistently supply professional seed quality, we partner with you to lower your production costs, increase your yield and successfully grow hundreds of cut flower varieties that ship and store exceptionally...help florists create better arrangements...and ultimately put a smile on the face of the end consumer.
ANEMONE

Anemone coronaria

Mona Lisa® Series F₁

Height: 18 in./46 cm
Seed supplied as: Raw
Planting density: 2 to 4 plants/ft.² (22 to 44 plants/m²)
Best For: Greenhouse, high tunnel
Plug crop time: 8 weeks
Transplant to finish: 12 weeks

• A masterpiece among anemones: Mona Lisa puts out up to 18 flowers per plant...flowers under lower Winter light levels...doesn’t need staking, netting or disbudding.

• 4 to 4.5-in./10 to 12-cm blooms top sturdy 18-in./45-cm stems that are ideal for cutting and design work.

• Well-suited for young plant production from March to April sowing.

• Low temperatures (46 to 54°F/8 to 12°C) promote optimum stem length for cut flower production.

2020 New Deep Blue Improved

Offers improved germination for more reliable supply. More uniform hybrid than the original for improved efficiencies in cut flower production.

ASCLEPIAS

Asclepias curassavica

Silky Series

Height: 24 to 28 in./61 to 71 cm
Seed supplied as: Raw
Planting density: 3 to 4 plants/ft.² (32 to 40 plants/m²)
Best for: Greenhouse, high tunnel, field
Plug crop time: 4 to 5 weeks
Transplant to finish: 11 to 12 weeks

• High-quality series is bred for greenhouse and outdoor Summer production and prefers a warm, rather dry location.

Also available: Mixture

CARTHAMUS

Carthamus tinctorius

Grenade Orange

Height: 32 to 40 in./81 to 102 cm
Seed supplied as: Coated
Direct sow to finish: 10 to 16 weeks

• Features round, thornless leaves and round flower buds atop stems of uniform length.

• Best grown as a direct-sown crop.

• Useful for indoor and outdoor professional cut flower production programs for fresh and dried use; can also be used green when harvested young.
Campanula medium

**Campana Series F1**

Height: 30 to 34 in./76 to 86 cm
Seed supplied as: Pelleted
Planting density: 6 to 8 plants/ft.² (64 to 80 plants/m²)
Best for: Greenhouse
Plug crop time: 7 to 8 weeks
Transplant to finish: 10 to 14 weeks

- Top-quality professional cut flower series is a low-energy crop, suitable for Summer or Winter production. See the Product Information Guide at panamseed.com for daylength requirements.
- Well-matched across the series for timing and habit, Campana delivers excellent uniformity.
- 100% top-flowering with strong stems and good foliage.

**2020 New Deep Blue Improved**

Large-flowered, deep blue campanula fits the series for timing, but is the best-quality variety in the series, and it features good vase life.

---

**FLORAL SELECTION GUIDE FOR BOUQUETS**

<table>
<thead>
<tr>
<th>Class/Variety</th>
<th>Page</th>
<th>Focal</th>
<th>Filler</th>
<th>Line</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANEMONE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mona Lisa Series</td>
<td>4</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASCLEPIAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silky Series</td>
<td>4</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAMPANULA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campana Series</td>
<td>5</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>CARPATHIUS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grenade Orange</td>
<td>4</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>CELOSIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bombay Series</td>
<td>6</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Celway Series</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neo Series</td>
<td>7</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring Green</td>
<td>6</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunday Series</td>
<td>8</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>DELPHINIUM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue Donna</td>
<td>9</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Guardian Series</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIANTHUS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amazon Series</td>
<td>11</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Sweet Series</td>
<td>10</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>GOMPHRENA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fireworks</td>
<td>12</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>QIS Series</td>
<td>12</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>LIMONIUM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QIS Series</td>
<td>13</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>LYSIANTHUS, DOUBLE</td>
<td>14</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABC Series</td>
<td>14</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flare Series</td>
<td>13</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>MATRICARIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegmo Series</td>
<td>16</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MATHIOLA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aida Series</td>
<td>16</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Column Stock</td>
<td>17</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Figaro Series</td>
<td>16</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Katz Series</td>
<td>19</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2020 New Katz Hi Double White</td>
<td>18</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathilda Series</td>
<td>16</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Opera Series</td>
<td>16</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2020 New Tosca Series</td>
<td>18</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SNAPDRAGON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cool Series</td>
<td>24</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Early Potomac Series</td>
<td>22</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maryland Series</td>
<td>20</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Monaco Series</td>
<td>21</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Potomac Series</td>
<td>22</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Purple Twist</td>
<td>24</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Red Deiliah</td>
<td>24</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>SUNFLOWER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jua Series</td>
<td>25</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>TRACHELIUM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lake Forest Purple</td>
<td>26</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lake Michigan Series</td>
<td>26</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Focal**

These are the largest blooms in the arrangement… the varieties that make customers go “aah!” Be sure to check out our centre-of-attention Jua sunflowers and lisianthus.

**Filler**

These transitional varieties have clusters of individual flowers on a single stem or flower head, and are used to fill in spaces between the Focal and Line flowers. Examples include dianthus and trachelium.

**Line**

These showy flowers add height and width to the arrangements, and are used to define the shape and direction. Many – like snapdragons and matthiola – feature flowers held close to the stem.

**Volume**

Secondary to the focal flowers, blooms like matthiola and dianthus provide a dense burst of colour and add mass to the bouquet.
CELOSIA
Celosia cristata (Cockscomb)

**Bombay® Series**

- **Height:** 28 to 40 in./71 to 102 cm
- **Seed supplied as:** Coated
- **Planting density:** 6 to 8 plants/ft.² (64 to 80 plants/m²)
- **Best for:** Greenhouse
- **Plug crop time:** 2 to 3 weeks
- **Transplant to finish:** 10 to 14 weeks

- Full colour assortment with programmable production - good for economical, high-density programs.
- High yields, strong stems and few off-shoot flowers.
- Flowers hold colour well and are well-suited to dried use.

**Spring Green**

- **Height:** 40 to 48 in./102 to 122 cm
- **Seed supplied as:** Coated
- **Planting density:** 6 to 8 plants/ft.² (64 to 80 plants/m²)
- **Best for:** Greenhouse
- **Plug crop time:** 2 to 3 weeks
- **Transplant to finish:** 12 to 16 weeks

- High percentage of saleable stems.
- Easy to program for year-round sales.
- Uniform plant habit with strong, round stems for easy harvesting and good shippability.

Request your Product Information Guide for full culture details.
Grow your margin, grow your sales

Neo lets you grow over a longer period through the year… harvest more usable stems from every ft²/m²…ship out better-quality C. cristata…and give florists a product that’s easier to arrange and easier to sell.

Neo Series

Height: 28 to 40 in./71 to 102 cm
Seed supplied as: Coated
Planting density: 6 to 8 plants/ft² (65 to 86 plants/m²)
Best for: Greenhouse
Plug crop time: 2 to 3 weeks
Transplant to finish: 8 to 12 weeks

- Less long day sensitive, making it easier to produce over a longer period during the year for most growers.
- Features new, unique colours and a much better leaf habit.
- Produces larger flowers with a thicker comb than Bombay.
- Easier to work with for bouquets or flower arrangements due to smaller leaves.

Gold Deepest yellow colour available on the market. NOTE: More sensitive to Fusarium compared to the rest of the series.
Orange Unique colour to the market will stir up interest for growers, retailers and florists.
Pink The fastest to flower of the series and the only dark-stemmed variety, with a slightly smaller bloom.
Red The slowest to flower and also a bit shorter compared to the rest of the series.
Rose The tallest of the series, with a more rose colour, bigger flower heads and lighter green stems than Pink. Also slower to flower than Pink.

Find product & growing info at panamseed.com / CELOSIA
**Sunday® Series**

**Height:** 28 to 40 in./71 to 102 cm

**Seed supplied as:** Coated

**Planting density:** 6 to 8 plants/ft.² (64 to 80 plants/m²)

**Best for:** Greenhouse, high tunnel

**Plug crop time:** 2 to 3 weeks

**Transplant to finish:** 12 to 16 weeks

- First professional cut version of the popular plume-shaped celosia.
- Full plumes and long, strong stems enhance high-end retail mixed bouquets.
- Short programmable production time and high yield - ideal for high-density programs.
- Excellent shippability and vase life.

**2019 New Bright Pink** Slightly shorter plumes compared to other Sunday varieties.

**2019 New Cherry** Bright cherry colour. Slightly larger leaves than other Sunday varieties.

**2019 New Orange Improved** More stem length, less daylength sensitivity and darker orange colour than previous Orange.

**2019 New Purple** Unique colour.

**2020 New Mixture Improved** Contains all new and improved colours: Dark Pink, Orange Improved, Bright Pink, Cherry, Purple and Gold.

**Sunday Mixture Improved**

**Sunday Yellow**

**Sunday Red**

**Sunday Bright Pink**

**Sunday Purple**

**Sunday Orange Improved**

**Sunday Cherry**

**Sunday Dark Pink**

**Sunday Wine Red**

**Sunday Gold**

---

**CELOSIA ©**

**Celosia plumosa**

**Sunday® Series**

**Height:** 40 to 48 in./102 to 122 cm

**Seed supplied as:** Coated

**Planting density:** 6 to 8 plants/ft.² (64 to 80 plants/m²)

**Best for:** Greenhouse, high tunnel; Purple, Terracotta and White are also suitable for field production

**Plug crop time:** 2 to 3 weeks

**Transplant to finish:** 10 to 14 weeks

- One central spiky plume is surrounded by several smaller spikes for a well-filled look.
- Short, programmable production time.
- Suitable for high-density production.
- Strong stems with small top leaves allow for good sleeving and shippability.

Also available: **Mixture**

**CELWAY is a trademark of Celex B.V.**

---

**CELOSIA ©**

**Celosia spicata**

**Celway® Series**

**Height:** 40 to 48 in./102 to 122 cm

**Seed supplied as:** Coated

**Planting density:** 6 to 8 plants/ft.² (64 to 80 plants/m²)

**Best for:** Greenhouse, high tunnel; Purple, Terracotta and White are also suitable for field production

**Plug crop time:** 2 to 3 weeks

**Transplant to finish:** 10 to 14 weeks

- One central spiky plume is surrounded by several smaller spikes for a well-filled look.
- Short, programmable production time.
- Suitable for high-density production.
- Strong stems with small top leaves allow for good sleeving and shippability.

**CELOSIA is a trademark of Celex B.V.**

---

Request your Product Information Guide for full culture details.
**DELPHINIUM**
*Delphinium elatum*

**Guardian Series F1**
- **Height:** 30 to 39 in./76 to 99 cm
- **Seed supplied as:** Raw
- **Planting density:** 2 to 4 plants/ft.² (22 to 44 plants/m²)
- **Best for:** Greenhouse, high tunnel; also suitable for field
- **Plug crop time:** 6 to 7 weeks
- **Transplant to finish:** 16 weeks
- Breeding breakthrough makes it easy to program your crop to meet shipping dates.
- Very uniform blooming within each variety, especially under short days.
- Works well as a tall landscape/perennial variety, as a commercial cut flower, and in potted plant programs.
- Up to 6 weeks faster from transplant to bloom than O.P. types for more turns per sq. ft./sq. m.
- Also suitable as a greenhouse cut flower or for garden cut flower production.
- As a greenhouse cut flower, Guardian can be grown under the same conditions as dianthus and snapdragons.
- Produces excellent stem quality for good cut flower shippability.

**DELPHINIUM**
*Delphinium x belladonna*

**Blue Donna**
- **Height:** 32 to 40 in./81 to 102 cm
- **Seed supplied as:** Raw
- **Planting density:** 2 to 4 plants/ft.² (22 to 44 plants/m²)
- **Best for:** Greenhouse, high tunnel; also suitable for field
- **Plug crop time:** 5 to 6 weeks
- **Transplant to finish:** 12 to 16 weeks
- True blue Delphinium has improved uniformity and colour, increased productivity and more stems per sq. ft./sq. m.
- Heat tolerant with low disease sensitivity.
**DIANTHUS**
*Dianthus barbatus*

**Sweet Series F1**

- **Height:** 18 to 36 in./46 to 91 cm
- **Seed supplied as:** Pelleted
- **Planting density:** 4 to 6 plants/ft.² (42 to 64 plants/m²)
- **Best for:** Greenhouse, high tunnel; also suitable for field
- **Plug crop time:** 4 to 5 weeks
- **Transplant to finish:** Late Spring/Summer greenhouse/field, 8 to 9 weeks; Late Summer/Winter greenhouse, 9 to 13 weeks; Field, 15 to 18 weeks

- Top-notch filler series features large, fragrant and long-lasting blooms on strong, straight stems.
- Produces high yields of saleable stems.
- Taller growth comes from early, Autumn-transplanted, greenhouse-grown plants.

**Deep Pink Maxine** More intense colour than Sweet Pink. A top-selling colour in most markets.

**2019 New Purple Improved** Richer colour and improved uniformity.

**White** Pure white with no grey anthers.
**DIANTHUS**
*Dianthus barbatus interspecific*

**Amazon Series F1**

- **Height:** 18 to 36 in./46 to 91 cm
- **Seed supplied as:** Pelleted
- **Planting density:** 3 to 4 plants/ft.² (30 to 40 plants/m²) for Non-Pinched crop; 1.5 plants/ft.² (15 plants/m²) for Pinched crop
- **Best for:** Greenhouse, high tunnel, field
- **Plug crop time:** 4 to 5 weeks
- **Transplant to finish:** Late Spring/Summer greenhouse/field, 11 to 14 weeks; Late Summer/Winter greenhouse, 12 to 18 weeks; Field, 18 to 23 weeks

- High yields of saleable stems.
- No vernalization is needed for flowering.
- As a Winter greenhouse crop, height is up to 36 in./91 cm, with tallest growth from early Autumn-transplanted plants.

**Neon Duo** Mix of Neon Cherry and Neon Purple.

**Rose Magic** Blooms start white and age to pink, then to deep rose; all colours show on individual flower heads.

**Dependable performance... by the bunch!**

Versatile and programmable, Amazon can be produced year-round and is the best dianthus you can grow for Summer production. Whether you’re looking for a high-appeal filler for bouquets or an exceptional product for monoculture bunches, Amazon is the one you want!
GOMPHRENA
Gomphrena haageana

**QIS Series**

- Height: 24 to 26 in./61 to 66 cm
- Seed supplied as: Raw
- Planting density: 1.5 plants/ft.$^2$
  (16 plants/m$^2$)
- Best for: Greenhouse, high tunnel
- Plug crop time: 5 to 6 weeks
- Transplant to finish: 10 to 12 weeks

- Vivid colour range makes these a Summer-long standout.
- Also as a first-class professional cut flower for greenhouse and outdoor production; suited to fresh and dried use.
- Also available: Purple, Mixture

GOMPHRENA
Gomphrena pulchella

**Fireworks**

- Height: 48 in./122 cm
- Seed supplied as: Coated
- Planting density: 0.75 plants/ft.$^2$
  (8 plants/m$^2$)
- Best for: Greenhouse, high tunnel, field
- Plug crop time: 5 to 6 weeks
- Transplant to finish: 8 to 9 weeks

- Unique “scaffolding” habit and more blooms per plant create an explosion of colour.
- Vigorous, “tough as nails” plants are drought tolerant, low maintenance.
- Excellent for mixed cut flower bouquets.
- Easy to produce – stays compact as a plug.
- Well-suited to high-margin gallon programs; suitable for field or garden cut flower production.
- Mississippi Medallion Award
**F₁ DOUBLE-FLOWERED LISIANTHUS**

*Eustoma grandiflorum*

**Flare Series**

*Height: 36 to 45 in. (91 to 114 cm)*

*Seed supplied as: Pelleted*

*Planting density: 8 plants/ft² (84 plants/m²) Summer, 6 plants/ft² (64 plants/m²) Winter*

*Best for: Greenhouse, high tunnel*

*Plug crop time: 8 to 10 weeks*

*Transplant to finish: Winter, 14 to 18 weeks; Spring/Autumn, 12 to 14 weeks; Summer, 10 to 12 weeks*

- The best spray-type Lisianthus series - Flare produces a spray of flowers on the top of each stem that opens within a short window, giving a bouquet effect to every stem.
- Labour savings, thanks to no pinching needed.
- Full spray effect may reduce the number of stems needed for floral arrangements.

**SEASONALITY NUMBER GUIDE FOR FLARE SERIES**

<table>
<thead>
<tr>
<th>Speed Guide</th>
<th>Flare Varieties</th>
<th>Optimum Flowering Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed 2 Mid Flowering</td>
<td>Deep Blue</td>
<td>Winter (Cool Temp.)</td>
</tr>
<tr>
<td></td>
<td>Deep Rose</td>
<td>Spring (Warm Temp.)</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>Summer (Hot Temp.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Autumn (Warm Temp.)</td>
</tr>
</tbody>
</table>

*Note: The number in variety name is the “Speed Guide”. It tells whether the variety is faster or slower to flower (1 - Early, 2 - Mid, 3 - Late, 4 - Very Late). Lisianthus flowering speed and quality is influenced by temperature, day length and light intensity during production. They will flower fastest under high temperatures, long days and high light intensities. Early-flowering varieties will flower relatively early and short with thin stems during periods of high temperatures, high light intensities and long-day conditions; hence, late-flowering varieties will be best suited under these conditions.*
F1 DOUBLE-FLOWERED LISIANTHUS

Eustoma grandiflorum

**ABC Series**

- **Height:** 36 to 45 in. / 91 to 114 cm
- **Seed supplied as:** Pelleted
- **Planting density:** 8 plants/ft.\(^2\) (84 plants/m\(^2\)) Summer; 6 plants/ft.\(^2\) (64 plants/m\(^2\)) Winter
- **Best for:** Greenhouse, high tunnel
- **Plug crop time:** 8 to 10 weeks
- **Transplant to finish:** Winter, 14 to 18 weeks; Spring/Autumn, 12 to 14 weeks; Summer, 10 to 12 weeks

- Best-in-class genetics have proven reduced sensitivity to rosetting in the plug and after transplant. You get more saleable plants and stems, plus reduced or no need for gibberellic acid (GA) spraying.
- Uniform vigour in plug and finish stages and faster finish times assure a short harvest window.
- Produces a high-quality finished crop year-round in a comprehensive colour range.
- Outstanding double flower form with high petal count on strong stems.
- Quickly becoming the wedding flower of choice, and an essential for bouquets, corsages and other arrangements.
- Exceptional vase life.

**Colors:**
- 1 White
- 1 Rose Rim
- 1 Yellow
- 1 Green
- 1 Deep Rose
- 1 Misty Blue
- 1 Purple

Request your Product Information Guide for full culture details.
### SEASONALITY NUMBER GUIDE FOR ABC SERIES

<table>
<thead>
<tr>
<th>Speed Guide</th>
<th>ABC Varieties</th>
<th>Optimum Flowering Period</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Winter (Cool Temp.)</strong></td>
<td><strong>Spring (Warm Temp.)</strong></td>
<td><strong>Summer (Hot Temp.)</strong></td>
</tr>
<tr>
<td><strong>Speed 1 Early Flowering</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Rose Rim</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>1 Deep Rose</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1 Green</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1 Misty Blue</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1 Purple</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1 White</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1 Yellow</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Speed 2 Mid Flowering</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Purple</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Blue</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Blue Rim</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Lavender</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Misty Blue</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Misty Pink</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Rose</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Yellow</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Speed 3 Late Flowering</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Purple</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3 Rose</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3 White</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**NOTE:** The number in variety name is the “Speed Guide”. It tells whether the variety is faster or slower to flower (1 - Early, 2 - Mid, 3 - Late, 4 - Very Late). Lisianthus flowering speed and quality is influenced by temperature, day length and light intensity during production. They will flower fastest under high temperatures, long days and high light intensities. Early-flowering varieties will flower relatively early and short with thin stems during periods of high temperatures, high light intensities and long-day conditions; hence, late-flowering varieties will be best-suited under these conditions.
MATRICARIA (TANACETUM)  
*Tanacetum parthenium*

**Vegmo Series**

- **Height:** 28 to 36 in./71 to 91 cm
- **Seed supplied as:** Pelleted
- **Planting density:** 8 plants/ft.² (80 plants/m²) in Summer; 7 plants/ft.² (70 plants/m²) in Winter
- **Best for:** Greenhouse, high tunnel
- **Plug crop time:** 4 to 5 weeks
- **Transplant to finish:** Winter, 14 to 16 weeks; Spring/Autumn, 10 to 14 weeks; Summer, 7 to 10 weeks
- **• Excellent, fast year-round crop.**
- **• Good post-harvest life.**
- **Also available:** Single Yellow

**Northern greenhouse selectable matthiola (Stock)**  
*Matthiola incana*

- **Seed supplied as:** Raw
- **Planting density:** 6 plants/ft.² (65 plants/m²)
- **Best for:** Greenhouse
- **Plug crop time:** 5 to 6 weeks
- **Transplant to finish:** Winter, 11 to 12 weeks; Spring, 8 to 9 weeks; Summer, 6 to 8 weeks; Autumn, 4 to 7 weeks

Bred for specific seasonal performance, the Aida, Figaro and Opera series offer an outstanding lineup of greenhouse-grown selectable matthiola for year-round production. These matthiola are well-matched for timing and deliver very uniform plant performance. Transplanting for seasons earlier than listed will result in later flowering.

Greenhouse-grown matthiola are distinguished from field-grown types by the softer green leaves.

**Mathilda Series**  
(Spring Flowering, Group 2)

- **Stem length:** 32 in./81 cm
- **Seed supplied as:** Raw
- **Planting density:** 6 plants/ft.² (65 plants/m²)
- **Best for:** Greenhouse
- **Plug crop time:** 5 to 6 weeks
- **Transplant to finish:** Winter, 11 to 12 weeks; Spring, 8 to 9 weeks; Summer, 6 to 8 weeks; Autumn, 4 to 7 weeks

• Mathilda delivers the most uniform series on the market for habit and timing, with the best seed quality of any selectable matthiola.
• Important upgrade assures more programmable production, higher production per sq. ft./m in the greenhouse and fewer losses.

**2020 New Lavender** Intense lavender colour.

**Pink** Slightly taller than White and Yellow.

**Yellow** Offers the best selectable yellow variety, with consistent, uniform colour.
MATTHIOLA (STOCK)
Matthiola incana

**Column Stock**

- **Height:** 24 to 30 in./61 to 76 cm
- **Seed supplied as:** Raw
- **Planting density:** 2.2 lbs./acre (1 kg/4,000 m²)
- **Best for:** Field
- **Direct sow to finish:** 20 to 22 weeks

- Single-stemmed florist types have dense, showy spikes of scented, large, double flowers closely spaced on the stems.
- Optimum stem length is achieved during cool growing periods; high heat can stunt plants or prevent flower spikes from developing.
- Non-selectable for doubleness.

Also available: **Formula Mixture**

- **Lilac Lavender**
- **Pacific Blue**
- **Miracle Mid-Blue**
- **Purple Heart**
- **Apricot**
- **Appleblossom**
- **Malmaison Pink**
- **Pink Sweetheart**
- **Ball Pink**
- **Rose Pink**
- **Pacific Crimson**
- **American Beauty**
- **Avalanche**
- **White Goddess**
- **Miracle Yellow**
NORTHERN GREENHOUSE SELECTABLE MATTHIOLA (STOCK) Matthiola incana

2020 New Tosca Series (Spring Flowering, Group 2, 3)

Stem length: 24 to 32 in. / 61 to 81 cm
Seed supplied as: Raw
Planting density: 6 to 7 plants/ft² (65 to 75 plants/m²)
Best for: Greenhouse
Plug crop time: 5 to 6 weeks
Transplant to finish: Autumn: 8 to 10 weeks, Spring: 10 to 11 weeks, Summer: 6 to 8 weeks, Winter: 12 to 14 weeks

• A good series to grow in Summer with higher light levels and temperatures.

NEW Katz Hi Double White provides greater than 90% yield of usable double-flowered stems, and this top-selling colour also has flower quality to match current Katz White.
Katz Series

Stem length: 32 in./80 cm
Seed supplied as: Raw
Planting density: 12 plants/ft.\(^2\)
(126 plants/m\(^2\))
Best for: High tunnel, field
Plug crop time: 4 weeks
Transplant to finish: 8 to 13 weeks

- Delivers shorter crop time, uniform stem length and timing between colours, and better heat tolerance than European or traditional field types.
- Can be grown earlier and later in the season, and even year-round in some climates, allowing for programmable Christmas through Valentine’s Day flowering.
- Katz Matthiola will produce approximately 50% double-flowering types.

Cherry Blossom ASCFG 2013 Fresh Cut Flower of the Year.

The power of caring & sharing
We are proud to support PANCAN for pancreatic cancer research by donating 5% of our net seed sales of Katz Matthiola in honor of Philip Katz.

PanAmerican Seed was honored to have Philip Katz as our Cut Flower Product Manager for 13 years. Philip spearheaded the drive to grow our business in this important market into one that is now supplying commercial growers around the globe with outstanding, high-quality cut flower varieties. After a valiant battle, the disease took Philip from all of us. The debut of a new Matthiola series was timely and let us honor Philip in a way he would have truly appreciated.
All cut flower snapdragons are supplied as raw seed.

**Stem length:** 39 to 60 in./1 to 1.5 m  
**Planting density:** 6 to 10 plants/ft² (64 to 106 plants/m²); high-density planting under high-light or field situation  
**Best for:** Greenhouse, high tunnel  
**Plug crop time:** 4 to 5 weeks  
**Transplant to finish:** 8 to 18 weeks

**Maryland Series**  
(Group 1,2)

- Energy-efficient series is your best choice for cool-season, low-light and low-temperature conditions.  
- Group with other Group 1,2 varieties (Cool, Purple Twist and Red Delilah) for Autumn, Winter and Spring programs.  
- Well-defined flower spikes are produced on sturdy, clean stems.  
Also available: **Flamingo (1,2)**  

---

**SERIES SELECTION FOR CREATING A HIGH-QUALITY YEAR-ROUND SNAPDRAGON PROGRAM**

<table>
<thead>
<tr>
<th>Group</th>
<th>Growing-On Night Temperatures</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2</td>
<td>45 to 55°F/7 to 13°C for late and early Spring harvest</td>
<td>Cool, Maryland, Purple Twist, Red Delilah</td>
</tr>
<tr>
<td>2,3</td>
<td>52 to 57°F/11 to 14°C for Autumn and Spring harvest</td>
<td>Monaco</td>
</tr>
<tr>
<td>3,4</td>
<td>60°F/15°C for late Spring, Summer and early Autumn harvest</td>
<td>Potomac, Early Potomac</td>
</tr>
</tbody>
</table>

---

**F₁ SNAPDRAGON 🌻**  
*Antirrhinum majus*

Maryland Orange (1,2)

- **Lavender (1,2)**  
- **True Pink (1,2)**  
- **Plumblossom (2)**  
- **Royal (1,2)**  
- **Dark Orange (2)**  
- **Orange (1,2)**  
- **Red (1,2)**

---

Request your Product Information Guide for full culture details.
The “go-to” snaps for difficult transition harvest periods – late Summer to early Autumn and late Winter to early Spring.

Monaco tolerates warm Autumn conditions without flowering too quickly, and produces high-quality flower spikes when Autumn weather is unusually cool and dark.

Performs well all year in areas with moderate temperatures and little daylength fluctuation.

2020 New Orange Important colour addition to this transitional season series.
F: SNAPDRAGON CONTINUED

**Early Potomac® Series**  
(Group 3)

- Can be grown under medium to long days and moderate to high light levels.
- Ideal for Spring and Autumn programs, producing very high-quality, long stems with excellent taper.

**Potomac® Series**  
(Group 3,4)

- Tops for production during periods of high light, long days and warm temperatures.
- Plants produce tall, strong stems and long spikes with good flower quality.
- Can be grown year-round with supplemental high-intensity light.

**2020 New Royal Improved** Offers more vivid colour saturation and better flower spike quality.

**2020 New White Improved** Offers more reliable germination and improved flower spike quality.
Snaps second to none
PanAmerican Seed is the world leading supplier of F1 forcing snaps, with an unsurpassed choice of top-producing varieties selected for stem and flower quality, photoperiodic response and earliness to flower. With selections streamlined into 4 flowering response groups - including our popular Potomac family - you’ll find it a “snap” to build an all-year program of successful growing.
F1 SNAPDRAGON CONTINUED

Cool Series
(Group 1,2)
- Best, most uniform Winter-flowering snapdragon has genetically matched varieties with uniformity across the series and within each colour for timing, height and spike quality.
- Strong, sturdy stems have long, tight spikes with long tapers.
- Best produced under cool conditions; also the best series for dependable harvest during cool months.
- Well-suited to outdoor growing or under tunnels in California Winter conditions.
- Excellent production companion to delphiniums.

Purple Twist
(Group 2)
- Unique standalone variety adds novelty to your snap program.
- Can be produced under short days/moderate light conditions with night temperatures of 50 to 55°F/10 to 13°C during production.
- Can be scheduled and grown along with the Maryland series.
- Striped pattern varies depending on the growing environment – when grown in warmer greenhouse conditions, the white stripes are more dense/prominent, and when grown under cool outside/tunnel conditions, the purple is more dense/prominent.

Red Delilah
(Group 2)
- Fun and first-of-its-kind snap produces unique red and white tube-patterned flower spikes on strong, sturdy stems – a great choice to make top-quality bouquets.
- Can be scheduled and grown along with the Maryland series.
**F₁ SUNFLOWER**
*Helianthus annuus*

**Jua Series**

- **Height:** 36 to 60 in./91 to 152 cm
- **Seed supplied as:** Treated
- **Planting density:** 6 to 9 days after seedlings emerge, thin to 4 to 5 plants/ft² (42 to 52 plant/m²)
- **Best for:** High tunnel, field
- **Direct sow to finish (200-cell):** 8.5 to 10.5 weeks

- Jua varieties are bred to be less sensitive to cultural variations than traditional sunflowers.
- Pollenless, fast-growing plants produce 3.5 to 4.75-in./9 to 14-cm flowers, complemented by smaller, deep green top leaves.
- Very good vase life.
- Height is dependent on culture.

**Inca** Mahogany and gold bicouleur petals with dark centre.

**Maya** Golden yellow petals with dark black centre.

Find product & growing info at panamseed.com / SUNFLOWER
TRACHELIUM<br>Heliopsis<br>{Trachelium caeruleum}<br><br>**Lake Collection**<br><br>*Stem length:* 30 to 42 in./76 to 107 cm<br>*Seed supplied as:* Pelleted<br>*Planting density:* 6 to 8 plants/ft.² (64 to 84 plants/m²)<br>*Best for:* Greenhouse<br>*Plug crop time:* 7 to 9 weeks<br>*Transplant to finish:* 10 to 18 weeks<br><br>Three distinct series offer simplified ordering and production to fill year-round orders. Long-day flowering varieties need 16 to 18 hours of daylength to flower and produce the large central umbel with smaller side umbels or “satellites.” Excellent vase life and good shippability. Foliage is medium green unless noted.<br><br>**Lake Michigan Series**<br>(Spring and Autumn-Flowering)<br><br>- The greatest potential for year-round production in mild climates.<br>- Mid-season flowering (transitional Group 3) for mid-Winter to early Spring transplants to yield late Spring to early Summer flowers.<br>- May also be transplanted late Summer to early Autumn for Autumn to early Winter flowering.<br><br>**Lake Forest Purple**<br>(Winter-Flowering)<br><br>- Transplant in Autumn to early Winter for flowering in mid-Winter to early Spring.
PanAmerican Seed breeders constantly create new plants as well as genetic improvements on already-popular varieties. (Bombay Celosia)
Order PanAmerican Seed cut flower seed and plugs from your preferred distributor or call PanAmerican Seed.

Variety info, detailed growing tips and more at panamseed.com

630 231-1400 or 800 231-7065
The Netherlands: +31 (0) 228-541-844