

Dragon's Breath[®] Celosia

Easy color for growers, retailers and gardeners!

- Gorgeous plumes of blazing color bring height and texture to the garden and patio
- Unique red-bronze foliage adds depth to the landscape
- Fantastic performance under hot and humid conditions
- Extra-large plants are the perfect choice for gallons and larger containers
- Minimal nitrogen needed during growing period, less fertilizer and irrigation needed for growers



Dragon's Breath Red



SAKATA[®]

Sakata Ornamentals
www.sakataornamentals.com
408.778.7758

For complete cultural information please go to
www.sakataornamentals.com



CELOSIA
**DRAGON'S
BREATH[®]**
BLAZING COLOR!

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Celosia

Gorgeous plumes of blazing color
bring height and texture to the
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Dragon's Breath[®] Celosia

SPRING SEASON FINISH

Cultural Information for: Celosia Dragon's Breath Annual

Common Name: Celosia

Botanical Name: Celosia argentea plumosa

Seed Count: 37,000 – 48,000/ounce 1,300 – 1,700/gram

Optimum Germination Temperature: 70 – 75°F / 21 – 24°C

Optimum Growing Temperature: 65 – 75°F / 18 – 24°C

PLUG STAGE – 6 WEEKS (128 / 8 X 16 TRAY)

Stage 1 (days 1 – 10) Sow seeds in a well-drained soil mix and cover lightly with medium vermiculite. Maintain the soil temperature at 77°F/25°C. Germination occurs in 7 – 10 days. Since the root system is very delicate do not sow into open flats.

Stage 2 (days 11 – 20) After seedlings emerge, place flats in a well-ventilated area and reduce the temperature to 65 – 70°F/18 – 21°C during the day and 61 – 65°F/16 – 18°C at night. Fertilize plugs with 50-100 ppm N. Over watering will promote disease; especially botrytis and rhizoctonia.

NOTE: Celosia requires long day conditions (> 14 hours) in the plug stage to maintain vegetative growth and avoid pre-mature flower budding.

Stage 3 (days 21 – 34) Maintain good air circulation and keep media EC levels around 1.0 – 1.4 mmhos (2:1 dilution). Celosia is sensitive to day length and any type of stress; like water, low temperature or root banding. Avoid stressing the plugs with low fertilizer or moisture which promotes premature budding and stunted growth later in production.

Stage 4 (day 35 – 42) Plugs are ready for transplanting. Do not delay transplanting. Holding the plugs too long in the plug tray will limit future development of the plant and might cause premature flowering.

FINISHING

Transplanting: Celosia has a soft stem and a delicate root system. To avoid damage, use a plug popper to dislodge plugs and only handle seedlings by one leaf. Also avoid deep transplanting to prevent rhizoctonia.

Media: Select a well-drained media with little or no starter charge. The optimum pH is 5.8 to 6.2.

Temperature: Maintain the plants at a temperature of 65 – 75°F/18 – 24°C.

Light: High light, full sun is best.

Growth Regulator: Chlormequat, daminozide, fluprimidol, paclobutrazol and uniconazole are effective. Do not pinch.

Fertilization: To promote bright red foliage, avoid applying excess nitrogen and phosphorus, which promote green leaves; especially when planted in the landscape. Apply 100 ppm N biweekly targeting the EC at 0.7 – 0.8 mmhos (2:1 dilution). **Adequate potassium is necessary since a deficiency results in weaker stems and abnormal shaped flowers.** Therefore, applying a high potassium formulation, such as 15-3-20 or 15-5-30, works well and is highly recommended. Alternate with 15-0-15 or 15-5-15, if needed, to supply calcium and magnesium. An ideal ratio of potassium, calcium and magnesium is 3 : 2 : 1.

Photoperiod: Dragon's Breath™ Red is an obligate short day plant and is best sown in early April (Northern Hemisphere) under increasing day length to promote sufficient vegetative growth prior to the start of short days in mid-June. If sowing under short days, provide long day conditions (>14 hours) with either night interruption or day length extension (10 pm – 2 am) in order to promote vegetative growth until the desired plant height is achieved.

Flowering: In the garden with unimpeded root growth plants will flower in late summer as the days shorten. Container grown plants initiated with 3 weeks of short days (< 11 hours) will continue to flower in the container, even under long days, but will revert to vegetative growth under long days if planted in the ground.

Disease/Insects: Celosia is susceptible to botrytis, downy mildew, rhizoctonia, aphids and thrips.

Culture Watch Points: Boron deficiency causes deformed foliage and a witch's broom effect. Celosia is also sensitive to vaporized gases of certain herbicides like methylurea, methoxy, dichlorophenyl and dichlorobenzonitrile. In addition, avoid low temperatures (under 61°F/16°C).

Spring Scheduling:

Sow	Transplant	Container	Sell
Late January	Late February – early March	Quart	Mid – late April
Late January	February – mid March	2.5 quart, 6.5 – 8 inch	Late April – early May
Late January – early February	Mid March – late March	10 – 14 inch	May

Landscape: Celosia Dragon's Breath™ Red is ideal for planting outdoors. Highly prized for its attractive red foliage from sowing through flowering. Space 16 inches/40 cm. apart. To avoid stem rot, mulch should not contact the plant stem. **Night lighting, from street lights and parking lots, inhibits flowering.**

All information given is intended for general guidance only and may have to be adjusted to meet individual needs. Cultural details are based on North America conditions and Sakata cannot be held responsible for any crop damage related to the information given herein. Application of recommended growth regulators and chemicals are subject to local and state regulations. Always follow manufacturer's label instructions. Testing a few plants prior to treating the entire crop is best.

FALL SEASON FINISH

Cultural Information for: Celosia Dragon's Breath Annual

Common Name: Celosia

Botanical Name: Celosia argentea plumosa

Seed Count: 37,000 – 48,000/ounce 1,300 – 1,700/gram

Optimum Germination Temperature: 70 – 75°F / 21 – 24°C

Optimum Growing Temperature: 65 – 75°F / 18 – 24°C

PLUG STAGE – 5 WEEKS (288 / 12 X 24 tray)

Stage 1 (days 1 – 10) Sow seeds in a well-drained soil mix and cover lightly with medium vermiculite or media. Provide a soil temperature of 77°F/25°C. Germination takes place in 7 – 10 days. Since the root system is very delicate, sowing directly into plug cells is recommended over sowing into open flats.

Stage 2 (days 11 – 20) After seedlings emerge, place flats in a well-ventilated area and reduce the temperature to 65 – 70°F/18 – 21°C during the day and 61 – 65°F/16 – 18°C at night. Fertilize plugs lightly with 50 – 100 ppm N. Over watering will promote disease; especially damping off and botrytis.

NOTE: Celosia requires long day conditions (> 14 hours) in the plug stage to maintain vegetative growth and avoid pre-mature flower budding.

Stage 3 (days 21 – 28) Maintain good air circulation and keep media EC levels around 1.0 – 1.4 mmhos (2:1 dilution). Celosia is sensitive to day length and any type of stress; like water, low temperature or root banding. Avoid stressing the plugs with low fertilizer or moisture which promotes premature budding and stunted growth later in production.

Stage 4 (day 29 – 35) Plugs are ready for transplanting. It is best to handle Celosia by the leaves when transplanting to ensure no damage occurs to the delicate root system. Also avoid deep transplanting to prevent rhizoctonia. Do not delay transplanting. Holding the plugs too long in the plug tray will stunt future development of the plant and might cause premature budding.

FINISHING

Media: Select a well-drained media with little or no starter charge. Ideal pH is 5.5 – 6.0.

Temperature: Maintain the plants at a temperature of 65 – 75°F/18 – 24°C.

Light: High light, full sun is best.

Growth Regulator: A-Rest, B-Nine, Bonzi, Cycocel, Sumagic and Topflor are effective (www.ballpublishing.com/pdf/PGR0115.pdf). Do not pinch.

Fertilization: To promote bright red foliage, avoid applying excess nitrogen and phosphorus, which promote green leaves; especially when planted in the landscape. Apply 100 ppm N biweekly targeting the EC at 0.7 – 0.8 mmhos (2:1 dilution). **Adequate potassium is necessary since a deficiency results in weaker stems and abnormal shaped flowers.** Therefore, a high potassium formulation, such as 15-3-20 or 15-5-30, works well and is highly recommended. Alternate with 15-0-15 or 15-5-15, if needed, to supply calcium and magnesium.

Photoperiod: Dragon's Breath is an obligate short day plant and is best sown in early April (Northern Hemisphere) under increasing day length to promote sufficient vegetative growth prior to the start of short days in mid-June. If sowing under short days, provide long day conditions (>14 hours) with either night interruption or day length extension to promote vegetative growth until the desired plant height is achieved.

Flowering for late summer/fall finish dates: To flower under natural long-day conditions of summer (>12 hours of day-length), Dragon's Breath requires less than 11 hours of day-length. Begin short days (<11 hours) two weeks after transplanting for 21 – 28 days by black-clothing the crop. If possible, finish crop outside to lower the Average Daily Temperature. Ideal ADT range is 68 – 72°F/20 – 22°C. Provide shade at >80°F.

Flowering: Plants set out early in the garden with unimpeded root growth will flower in late summer as the days shorten. Container grown plants initiated with 3 weeks of short days will continue to flower in the container, even under long days, but if planted in the ground will revert to vegetative growth under long days.

Disease/Insects: Celosia is susceptible to pythium, downy mildew, botrytis, rhizoctonia, aphids and thrips.

Culture Watch Points: Boron deficiency can cause deformed foliage and a witch's broom effect. Celosia is also sensitive to vaporized gases of certain herbicides like methylurea, methoxy, dichlorophenyl and dichlorobenzonitrile. Also, avoid low temperatures (under 61°F/16°C).

Late Spring – Summer Scheduling:

Sow	Transplant	Container	Sell
Early April	Early May	Packs	Early June*
Early April	Early May	6 inch/15 cm	Mid-June*
Early May	Early June	10 inch/25 cm.	Late-August

*Vegetative stage without flower formation

For more detailed scheduling information, please access the full culture sheet at www.sakataornamentals.com/page/Culture-Guides.

Landscape: Celosia Dragon's Breath is ideal for planting outdoors. Highly prized for its attractive red foliage from sowing through flowering. Space 16 in./40 cm. apart. Avoid mulching too close to the plants to prevent stem rot (rhizoctonia). **Night lighting, from parking lots or street lights, inhibits flowering. Although, plants may eventually flower due to age.**

All information given is intended for general guidance only and may have to be adjusted to meet individual needs. Cultural details are based on North America conditions and Sakata cannot be held responsible for any crop damage related to the information given herein. Application of recommended growth regulators and chemicals are subject to local and state regulations. Always follow manufacturer's label instructions. Testing a few plants prior to treating the entire crop is best.