

Cultural Information for: Celosia Dragon's Breath™ Red Annual
Common Name: Celosia
Botanical Name: Celosia argentea plumosa
Seed Count: 37,00-48,000/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 to 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 premature flower budding.

Stage 3 (days 21-34) - Maintain good air circulation and keep media EC levels between 1.0 to 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 between 65-75°F/18-24°C.

Light: High light, full sun is best.

Growth Regulator: chlormequat, daminozide, fluprimsidol, paclobutrazol and uniconazole are effective. **Do not pinch.**

Fertilization: To promote red foliage, avoid excess nitrogen and phosphorus; 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.* A high potassium formulation, such as 15-3-20, works well. 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 sensitive to vaporized gases of certain herbicides like methylurea, methoxy, dichlorophenyl and dichlorobenzonitrile. Thiophanate-methyl fungicides may cause marginal chlorosis; especially when combined with heat and or moisture stress. Avoid low temperatures (under 61°F/16°C).

Spring Scheduling:

Sow	Transplant	Container	Sell
Late January	Late-Feb. – 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 Feb.	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.