Flowering Kale Yokohama

Cultural Information for: Flowering Kale Yokohama Annual
Common Name: Flowering Kale
Botanical Name: Brassica oleracea
Seed Count: 8,500 /ounce 300 / gram
Optimum Germination Temperature: 70°F / 21°C
Optimum Growing Temperature: 50-68°F / 10-20°C
Optimum pH: 5.8 – 6.2
EC – Plug: 0.4 – 0.8 mmhos/cm **(1:2)** / 0.9 – 2.0 **(SME)** / 1.1 - 2.6 **(Pour Thru)**
EC – Finishing: 0.9 – 1.3 mmhos/cm **(1:2)** / 2.1 – 3.5 **(SME)** / 2.7 - 4.6 **(Pour Thru)**

Plug Production – 28 days (288 / 12 x 24 tray)

Stage One (days 1-5) Single sow seed into a 288-plug tray filled with a sterile and well drained media. Optimum temperature is 70°F/21°C. Lightly cover with coarse vermiculite as seed requires light to germinate.

Stage Two (days 6-14) As soon as seedlings emerge move the trays to a cool and bright location with good air movement. Optimum temperature is 55-60°F/13-15°C. In summer under high temperature conditions placing trays outdoors under shade cloth works well. Fertilize with 50 ppm N using a well-balanced calcium-nitrate-based fertilizer to strengthen the seedlings.

Stage Three (days 15-22) Maintain optimum temperatures, if possible, and fertilize with 100 ppm N as needed to maintain strong growth.

Stage Four (days 23-28) The seedlings are approaching the transplant stage and should have 2 pairs of true leaves. Do not delay transplanting to avoid stretching.

Transplanting

Media: Flowering Kale does best in a soil-based mix (20-30% field soil) but soilless media can also be use with proper management.

Container: Flowering Kale Yokohama is targeted for production in 4-6 inch/10-15 cm. pots.

Spacing: The Yokohama series is more compact than the Nagoya series. To maximize plant size, and reduce stretching, allow enough space between the plants.

Fertilizer: Fertilize with 150 ppm N. using a well-balanced calcium nitrate-based fertilizer. Excess fertilizer delays leaf coloring and a deficiency causes the outer leaves to yellow and drop off. To avoid boron deficiency, apply 0.25 ppm boron when applying fertilizer.

Light: Flowering Kale grows well outdoors under full sun, up to 10,000-foot candles/107,000 lux.

Growth regulator: Under warm temperatures chemical growth regulation is necessary to keep the plants compact. Drenches with paclobutrazol (Bonzi®)at 2-5 ppm work best. Spray applications of paclobutrazol are not effective. **Applications of daminozide (B-Nine®) are not recommended as it delays color formation.**

Coloring: The plants need to be of enough size before color initiation. The leaf color change is related to anthocyanins (a group of water-soluble flavonoids that impart pink to purple colors in leaves) that are always present in the leaves but are hidden by the chlorophyll ~ green color. When the daytime temperature is higher than 77ºF and the night temperature is greater than 59ºF, the leaves of Ornamental Cabbage and Kale can synthesize chlorophyll. When the daytime temperature is under 72-73ºF and the nighttime temperature is between 40-59ºF, the synthesis of chlorophyll stops and color (anthocyanins) begins to appear. In the case where cool temperatures come early and the Ornamental Cabbage and Kale begins coloring and then the weather changes and warmer temperatures return, the color will change back to green (referred to as Green Back) due to the leaf starting to synthesize chlorophyll again.

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Note: Yokohama is primarily used for its unique leaf texture, with less intense leaf coloration when compared to the Nagoya series.

Scheduling:

Container Size	Weeks to the start of leaf color
4 inch / 10 cm.	10-11 weeks from sowing
6 inch / 15 cm.	11-12 weeks from sowing

Insects: Aphids, caterpillars, cut worms

Disease: Botrytis, downy mildew

Variety comparison

Variety	Height	Width
Nagoya Red	10 in./ 25 cm.	12 in. / 30 cm.
Yokohama Red	7 in. / 18 cm.	10 in. / 25 cm.
Nagoya White	6 in. / 15 cm.	10 in. / 25 cm.
Yokohama White	6 in. / 15 cm.	9 in. / 23 cm.

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"All information given is only intended for general guidance and may need adjustment 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".

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