

**Cultural Information for:** Begonia Viking, Viking XL F1 Annual  
**Common Name:** Wax Begonia  
**Botanical Name:** Begonia x hybrida  
**Seed Count:** 1,900,000/oz 70,000/gr.  
**Optimum Germination Temperature:** 72-77°F / 22-25°C  
**Optimum Growing Temperature:** 70-72°F / 21-22°C  
**Optimum pH:** 5.5 – 6.0  
**EC – Plug:** 0.26 – 0.75 mmhos/cm (1:2) / 0.76 – 2.0 (SME)  
**EC – Finishing:** 0.76 – 1.25 mmhos/cm (1:2) / 2.1 – 3.5 (SME)

### Plug Culture – 8 weeks (288 / 12 x 24 tray)

**Stage 1** (days 1-10) Sow pelleted seed into trays filled with a sterile and well-drained media. Optimum pH is 5.5 to 6.0. Do not cover the seed as begonias require light to germinate. Provide 20-100 foot-candles / 220-1,100 lux in the germination chamber. Maintain a temperature of 72-77°F/22-25°C and enough moisture to melt the pellet. The media should be wet to saturated with 100% relative air humidity.

**Stage 2** (days 11-21) The cotyledons are now visible, and roots are beginning to form. Supplemental lighting at 450-700 foot-candles / 5,000-7,500 lux following germination greatly reduces crop time. Strong sunlight (>2,000 foot-candles/21,000 lux) will cause high leaf temperature and leaf edge burn. Maintain the media moist but not saturated to promote healthy root development and penetration. For irrigation use water with temperature > 65°F/18°C. Reduce air humidity to 70-80%. Begin feeding at 50-75 ppm nitrogen from a well-balanced calcium nitrate- based formulation. Avoid using ammonium nitrate which may inhibit root growth during germination and plug development. Highly alkaline water (> 300 HCO<sub>3</sub>) damages seedlings by causing burn.

**Stage 3** (days 22-48) The first true leaves are developed, and roots are beginning to penetrate the media. Reduce air temperature to 65–68°F/18-20°C. Begonias are light accumulators and flowering is directly related to the quantity and quality of light received. Allow the media to dry slightly between irrigations as begonia roots require high levels of oxygen. Another important point in growing Begonia is to maintain high air humidity (relative humidity) to minimize leaf burning during stages 2 and 3. Increase the fertilizer rate to 100-150 nitrogen once or twice per week.

**Stage 4** (days 49-56) At the end of stage 4 the plugs should have 2-3 sets of true leaves and the roots should hold the plug media together. Optimum air temperature is 65-68°F/18-20°C to help tone the plugs. Avoid temperatures below 61°F/16°C and maintain the EC level at 0.26 - 0.75 mmhos.

### Transplanting to selling – 9-10 weeks

**In general:** Water early in the day if using overhead irrigation to avoid leaf edge burn when leaf temperatures are high.

**Media:** Select a sterile and well-drained media with a pH between 5.5 - 5.8 and low in salts.

**Transplanting:** Optimum stage is when the seedling roots reach the edge of the plug and have 4-6 true leaves.

**Temperature:** Optimum growing temperature is 70-72°F/21-22°C during the day and 65-68°F/18-20°C at night for the first 14 days after transplant. Once established the night temperature may be reduced to 63°F/17°C. About 4 weeks after transplant the temperature may be lowered to 57-59°F/14-15°C to avoid too large leaves and to keep the plants compact.

**Fertilizer:** Apply 100-150 ppm of nitrogen from a well-balanced calcium nitrate-based formulation. The use of Cal/Mag formulations like 15-5-15 work well to supply adequate amounts of magnesium. Tall and stretched plants with few flowers indicate too much or too little phosphorous. Stunted, chlorotic plants with marginal leaf burn indicate a lack of calcium and magnesium. To maintain optimum pH, one may alternate with an ammonium-based fertilizer like 20-10-20.

**Lighting:** Supplemental lighting, up to 2,500 foot-candles/2,600 lux will hasten development and flowering.

**Plant Growth Regulators:** None are required if growth is controlled by temperature and feed, but if needed, particularly in warmer climates, lower rates of B-9 or Cycocel can be utilized.

**Pests & Diseases:** Botrytis

### Crop Scheduling:

Series	Containers	Total crop time
Viking	4-inch / 10 cm.	15-16 weeks
Viking	6-inch / 15 cm.	16-17 weeks
Viking	1 Gallon / 4 liter	18-19 weeks
Viking	10 inch / 25 cm., Baskets	19-20 weeks

Series	Containers	Total crop time
Viking XL	8-inch / 20 cm.	18-19 weeks
Viking XL	1 Gallon / 4 liter	19–20 weeks
Viking XL	10 inch / 25 cm., Baskets	20-21 weeks

### Series Specifications:

Series	Garden Height	Garden Width
Viking	20-24" / 50-60 cm.	24-28" / 60-70 cm.
Viking XL	28-34" / 70-85 cm.	32-36" / 80-90 cm.

*"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 American 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."*